MITSUBISHI ELECTRIC

Changes for the Better

SPLIT-TYPE AIR CONDITIONERS

Revision B:
• MLZ-KA25/35/50VA-E3 have been added.

Please void OBH483 REVISED EDITION-A.

INDOOR UNIT

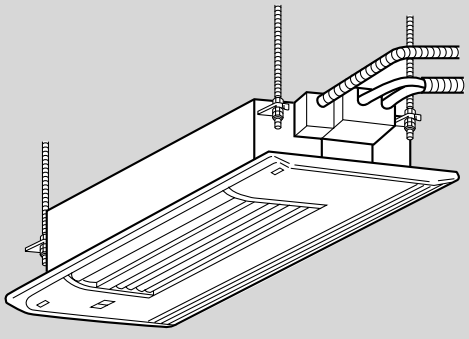
SERVICE MANUAL

No. OBH483
REVISED EDITION-B

Models

MLZ-KA25VA - E1
MLZ-KA25VA - E2
MLZ-KA25VA - E3
MLZ-KA35VA - E1
MLZ-KA35VA - E2
MLZ-KA35VA - E3
MLZ-KA50VA - E1
MLZ-KA50VA - E2
MLZ-KA50VA - E3

Outdoor unit service manual
MXZ-A·VA Series (OB377)
MXZ-B·VA Series (OBH554)
MXZ-8B·VA Series (OCH480)
MXZ-D·VA Series (OBH626)



MLZ-KA25VA
MLZ-KA35VA
MLZ-KA50VA

CONTENTS

1. TECHNICAL CHANGES ····· 2
2. PART NAMES AND FUNCTIONS ····· 3
3. SPECIFICATION ····· 4
4. NOISE CRITERIA CURVES ····· 5
5. OUTLINES AND DIMENSIONS ····· 6
6. WIRING DIAGRAM ····· 7
7. REFRIGERANT SYSTEM DIAGRAM ····· 10
8. SERVICE FUNCTIONS ····· 11
9. MICROPROCESSOR CONTROL ····· 13
10. TROUBLESHOOTING ····· 18
11. DISASSEMBLY INSTRUCTIONS ····· 32

PARTS CATALOG (OBB483)

NOTE:
• RoHS compliant products have <G> mark on the spec name plate.

Revision A :
• MLZ-KA25/35/50VA-E2 have been added.

Revision B :
• MLZ-KA25/35/50VA-E3 have been added.

1 TECHNICAL CHANGES

MLZ-KA25VA-E1 ➔ MLZ-KA25VA-E2
MLZ-KA35VA-E1 ➔ MLZ-KA35VA-E2
MLZ-KA50VA-E1 ➔ MLZ-KA50VA-E2

1. Fan motor has been changed (RC0J30-KC → RC0J30-KK).

2. Control of auto fan speed has been changed. (When indoor units are connected with a multi type outdoor unit, and operated in heat mode.)
   Air flow in auto fan speed is changed depending on air outlet temperature of indoor unit.

3. Electronic control P.C. board has been changed.

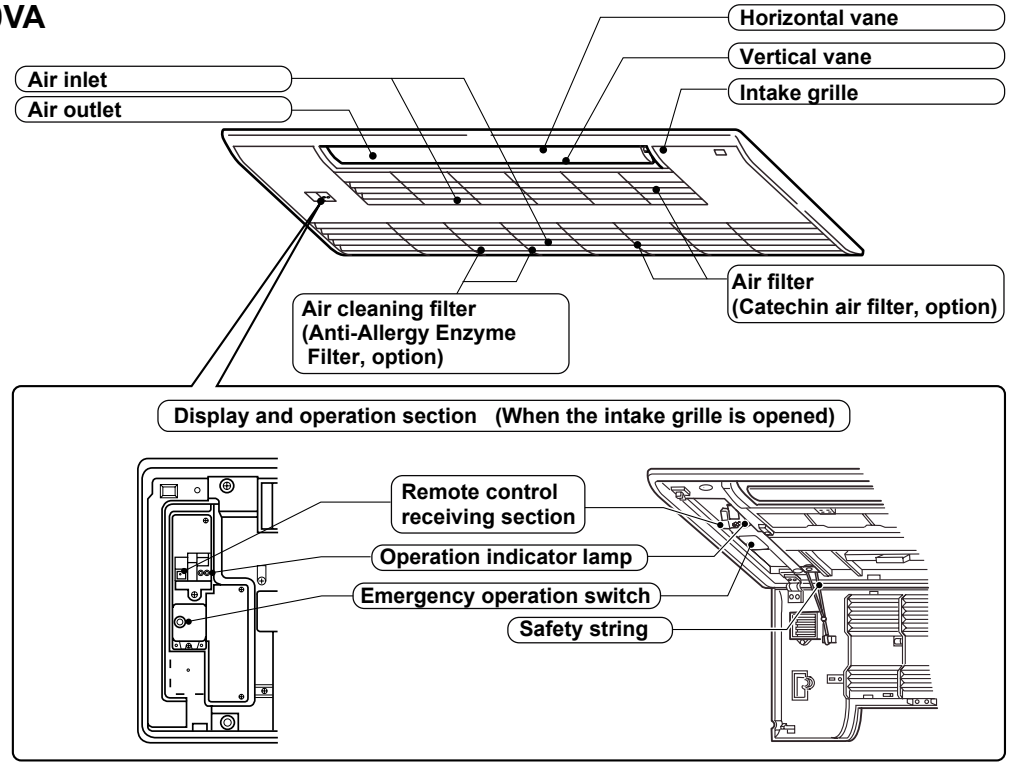
MLZ-KA25VA-E2 ➔ MLZ-KA25VA-E3
MLZ-KA35VA-E2 ➔ MLZ-KA35VA-E3
MLZ-KA50VA-E2 ➔ MLZ-KA50VA-E3

1. Software has been changed for ERP.

2 PART NAMES AND FUNCTIONS

INDOOR UNIT

MLZ-KA25VA
MLZ-KA35VA
MLZ-KA50VA



Remote controller

ACCESSORIES

		MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA
①	Alkaline battery (AAA) for remote controller	2
②	Drain hose (with insulation)	1
③	Special washer (with cushion, 4pcs)	8
④	Installation template	1
⑤	Fixing screw for ④ M5 x 30 mm	4
⑥	Band	1
⑦	Fixing screw for ⑥ 4 x 16 mm	2
⑧	Remote controller	1
⑨	Remote controller holder	1
⑩	Fixing screw for ⑨ 3.5 x 16 mm (Black)	2

3 SPECIFICATION

Indoor model			MLZ-KA25VA		MLZ-KA35VA		MLZ-KA50VA	
Function			Cooling	Heating	Cooling	Heating	Cooling	Heating
Power supply			Single phase 230V,50Hz		Single phase 230V,50Hz		Single phase 230V,50Hz	
Capacity	Air flow (High/Med./Low)	m^3 /h	528/ 480/ 432	552/ 492/ 420	564/ 504/ 438	594/ 528/ 462	684/ 588/ 498	708/ 618/ 528
Electrical data	Running current ✻1	A	0.3		0.3		0.3	
	Power input ✻1	W	40		40		40	
	Auxiliary heater	A(kW)	—		—		—	
	Power factor ✻1	%	58		58		58	
	Fan motor current ✻1	A	0.3		0.3		0.3	
Fan motor	Model		E1 RC0J30-KC		E1 RC0J30-KC		E1 RC0J30-KC	
			E2 E3 RC0J30-KT		E2 E3 RC0J30-KT		E2 E3 RC0J30-KT	
	Dimensions W x H x D	mm	1,102 x 175 x 360		1,102 x 175 x 360		1,102 x 175 x 360	
	Weight	kg	15		15		15	
Special remarks	Air direction		5		5		5	
	Sound level (High/Med./Low)	dB(A)	35/ 32/ 29	36/ 32/ 28	37/ 34/ 31	38/ 35/ 31	43/ 38/ 34	43/ 39/ 34
	Fan speed (High/Med./Low)	rpm	1,120/1,030/950	1,160/ 1,060/ 930	1,180/ 1,080/ 960	1,230/ 1,120/ 1,000	1,380/1,220/1,070	1,420/ 1,270/ 1,120
	Fan speed regulator		3		3		3	
	Remote controller model		KM07E		KM07E		KM07E	

NOTE: Test conditions are based on ISO 5151.
Cooling: Indoor Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Outdoor Dry-bulb temperature 35°C Wet-bulb temperature 24°C
Heating: Indoor Dry-bulb temperature 20°C
Outdoor Dry-bulb temperature 7°C Wet-bulb temperature 6°C
Refrigerant piping length (one way): 5m
✻1 Measured under rated operating frequency.

Specifications and rated conditions of main electric parts

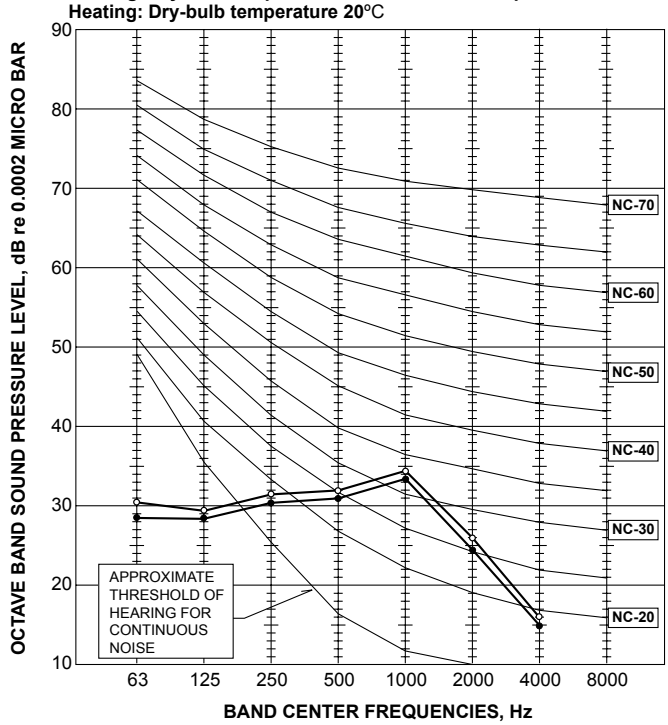
Item \ Model		MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA
Fuse	(F11)	T3.15AL 250V
Horizontal vane motor	(MV1)	12V 300Ω
Vertical vane motor	(MV2)	12V 300Ω
Varistor	(NR11)	ERZV14D471
DRAIN PUMP	(DP)	230V 6.4W
FLOAT SENSOR	(FS)	DC 12V

4 NOISE CRITERIA CURVES

MLZ-KA25VA

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOLING	35	●——●
	HEATING	36	○——○

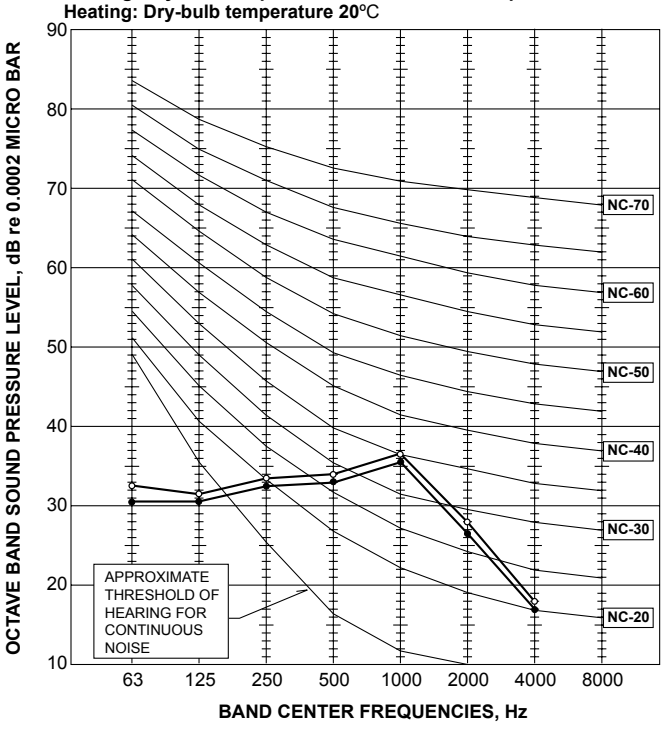
Test conditions,
Cooling: Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Heating: Dry-bulb temperature 20°C



MLZ-KA35VA

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOLING	37	●——●
	HEATING	38	○——○

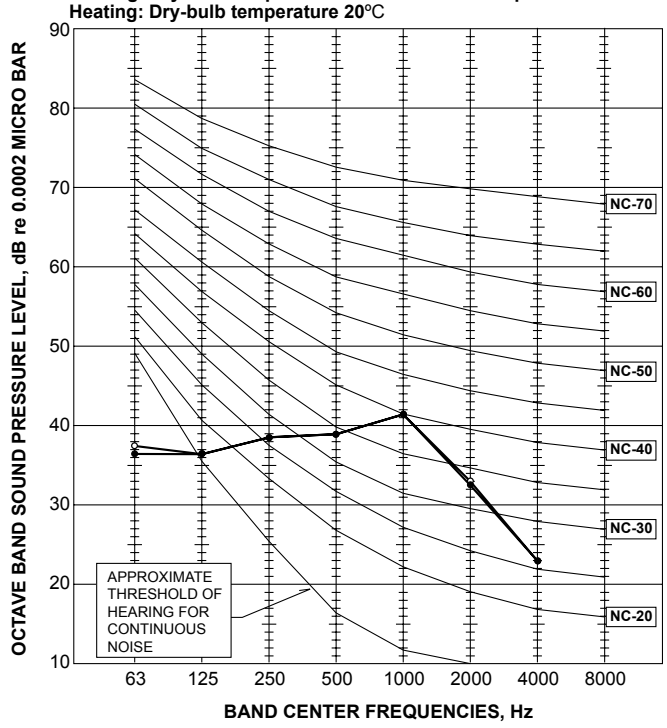
Test conditions,
Cooling: Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Heating: Dry-bulb temperature 20°C

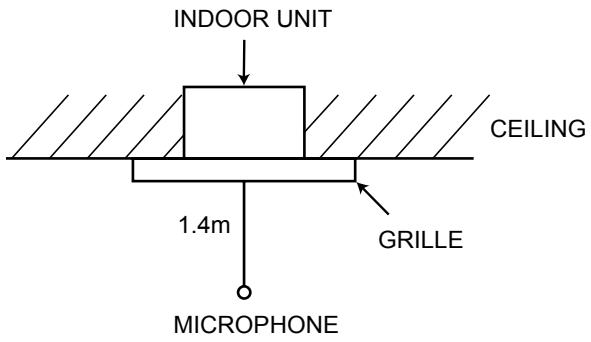


MLZ-KA50VA

FAN SPEED	FUNCTION	SPL(dB(A))	LINE
High	COOLING	43	●——●
	HEATING	43	○——○

Test conditions,
Cooling: Dry-bulb temperature 27°C Wet-bulb temperature 19°C
Heating: Dry-bulb temperature 20°C

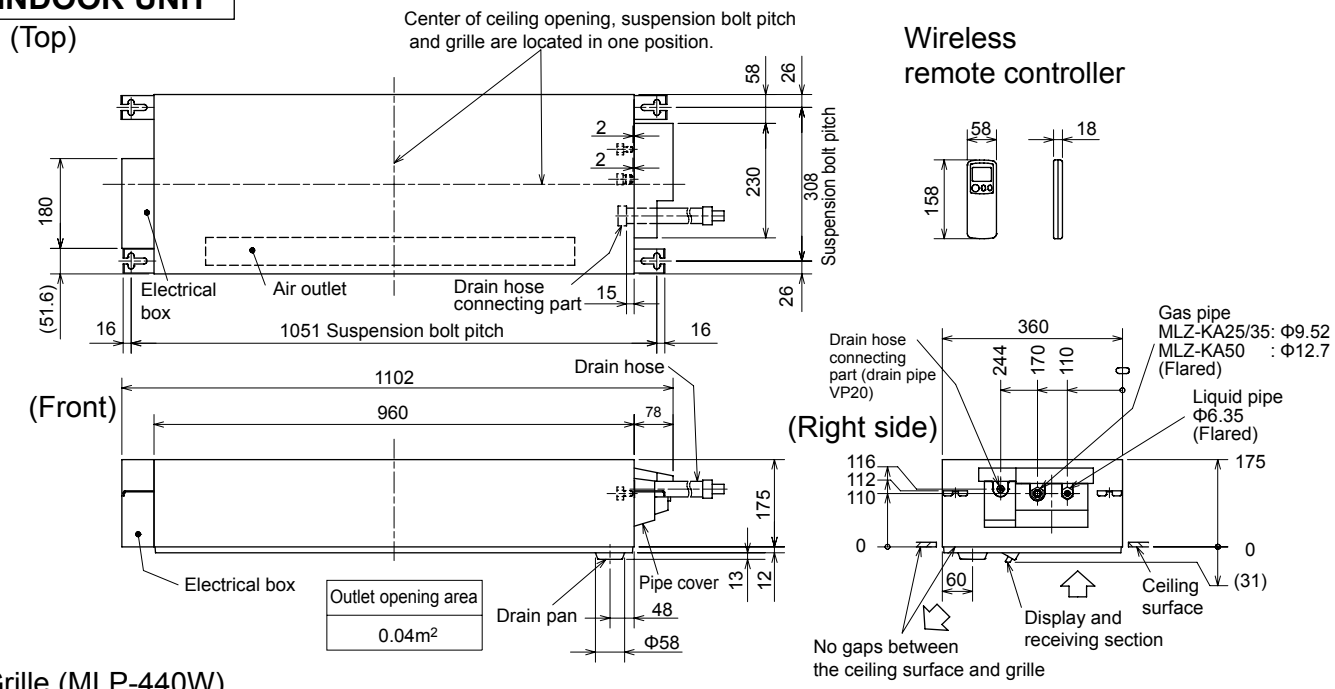


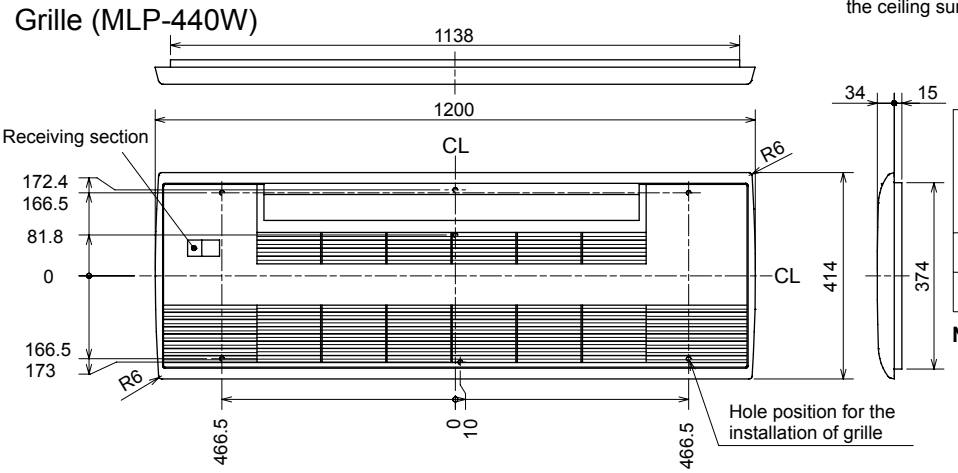


5 OUTLINES AND DIMENSIONS

MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA **Unit : mm**

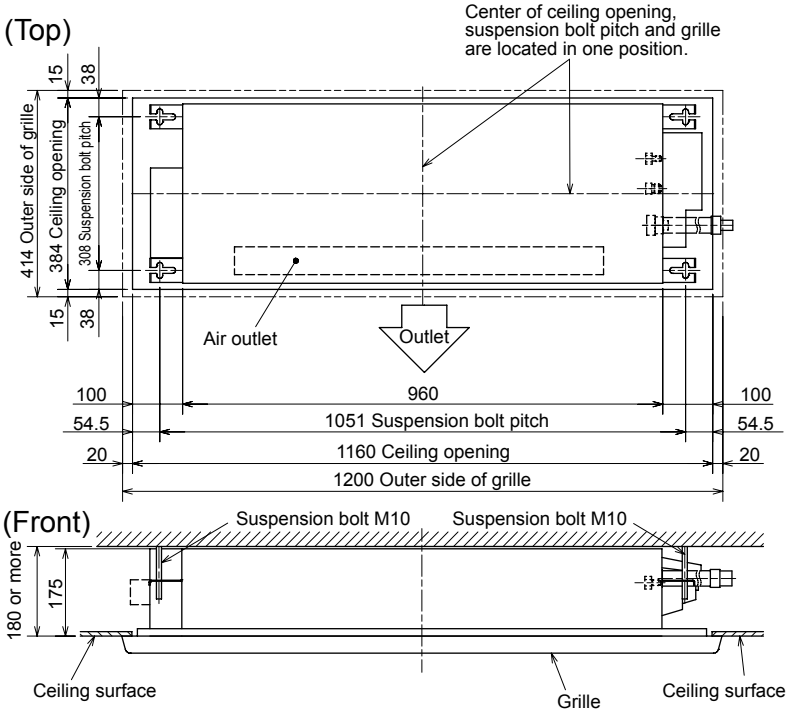
INDOOR UNIT



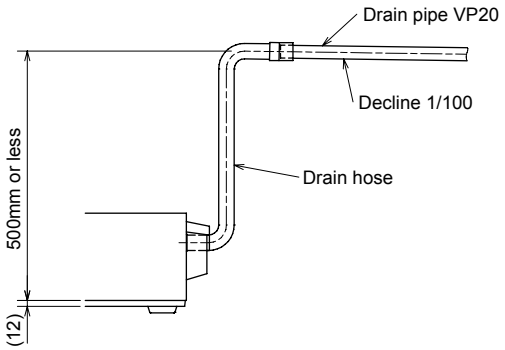


Refrigerant Pipe	Liquid	Φ6.35
	Gas	Φ9.52 (MLZ-KA25/35) Φ12.7 (MLZ-KA50)
Length of drain hose		540
Drain pipe		VP20

NOTE: Drain hose can be used by cutting it.



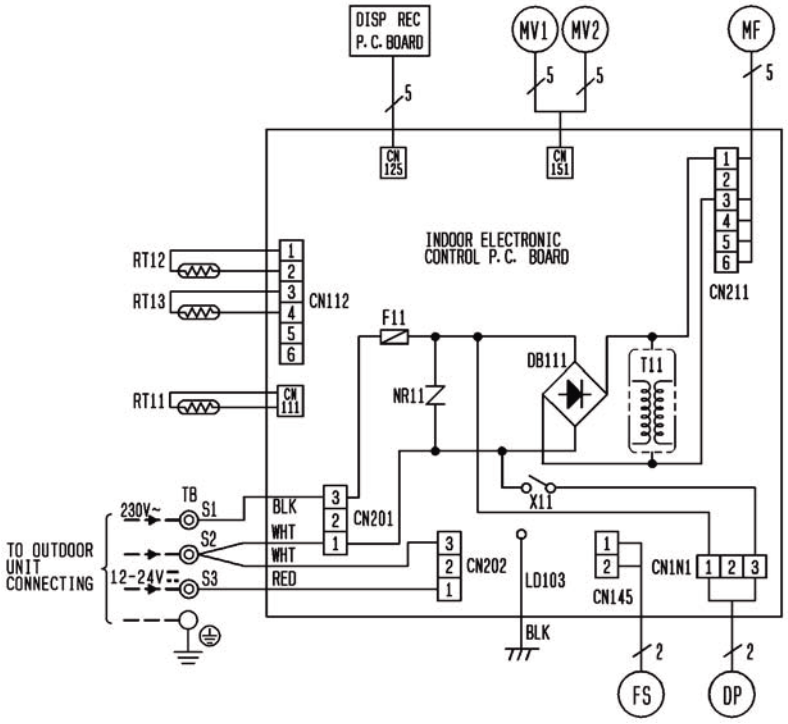
How to connect drain pipe on indoor unit by lifting drain hose.
※ Drain hose can be used by cutting it.



6 WIRING DIAGRAM

INDOOR UNIT

MLZ-KA25VA- E1
MLZ-KA35VA- E1

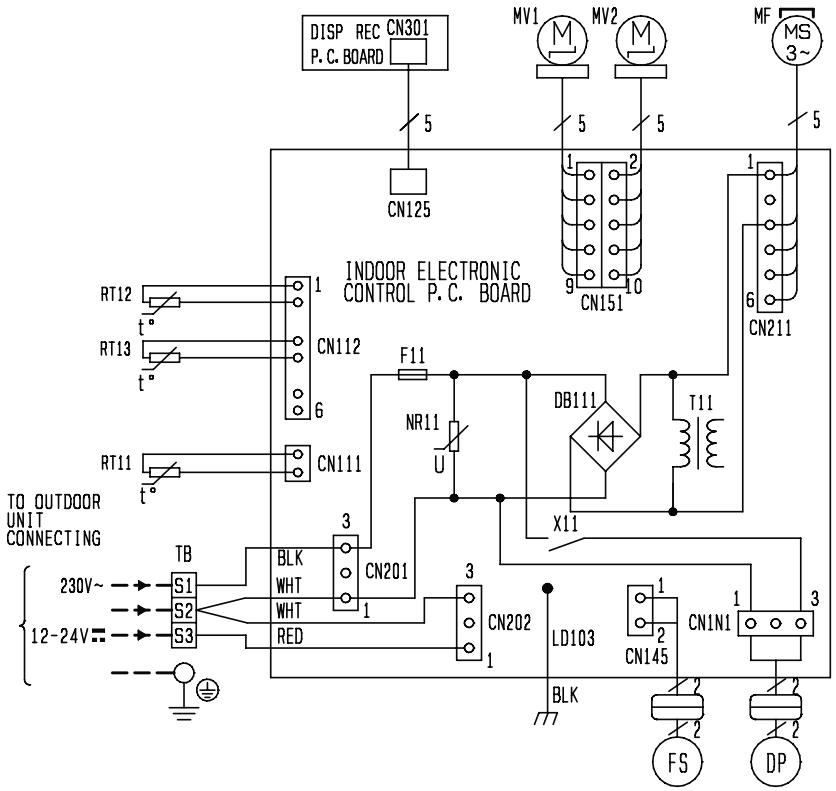


SYMBOL	NAME	SYMBOL	NAME
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	HORIZONTAL VANE MOTOR	RT12	COIL TEMP. THERMISTOR (MAIN)
MV2	VERTICAL VANE MOTOR	RT13	COIL TEMP. THERMISTOR (SUB)
DP	DRAIN PUMP	DB111	DIODE STACK
FS	FLOAT SENSOR	NR11	VARISTOR
F11	FUSE (T3.15AL250V)	T11	TRANSFORMER
X11	RELAY		

NOTES: 1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.

◎ : Terminal block
▭ : Connector

MLZ-KA25VA- E2
MLZ-KA35VA- E2

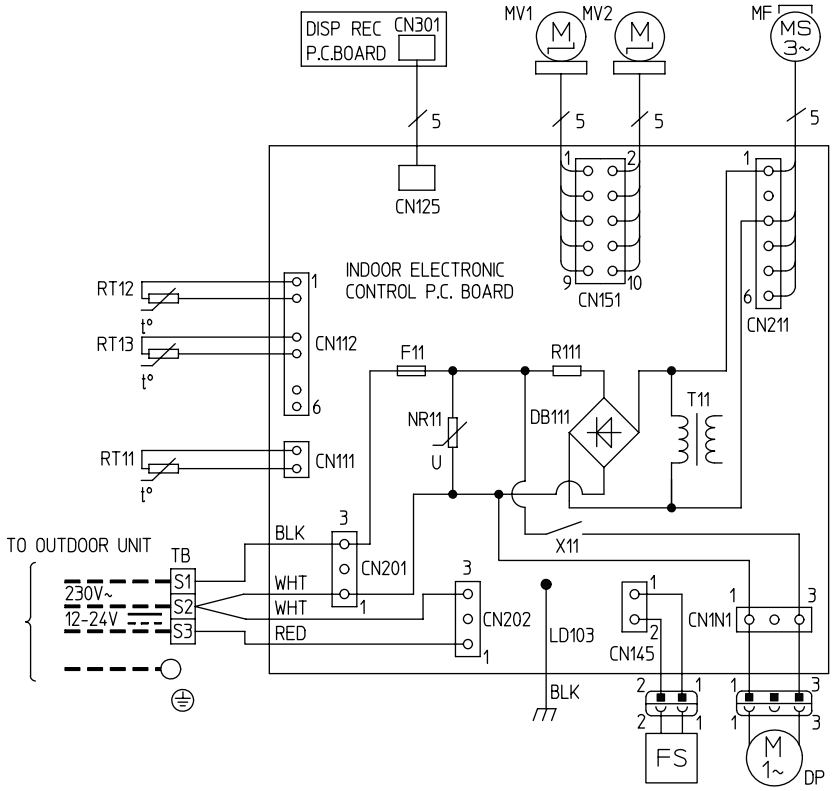


SYMBOL	NAME	SYMBOL	NAME
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	HORIZONTAL VANE MOTOR	RT12	COIL TEMP. THERMISTOR (MAIN)
MV2	VERTICAL VANE MOTOR	RT13	COIL TEMP. THERMISTOR (SUB)
DP	DRAIN PUMP	DB111	DIODE STACK
FS	FLOAT SENSOR	NR11	VARISTOR
F11	FUSE (T3.15AL250V)	T11	TRANSFORMER
X11	RELAY		

NOTES:
1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.

▭ : Terminal block
▭ : Connector

MLZ-KA25VA- E3
MLZ-KA35VA- E3

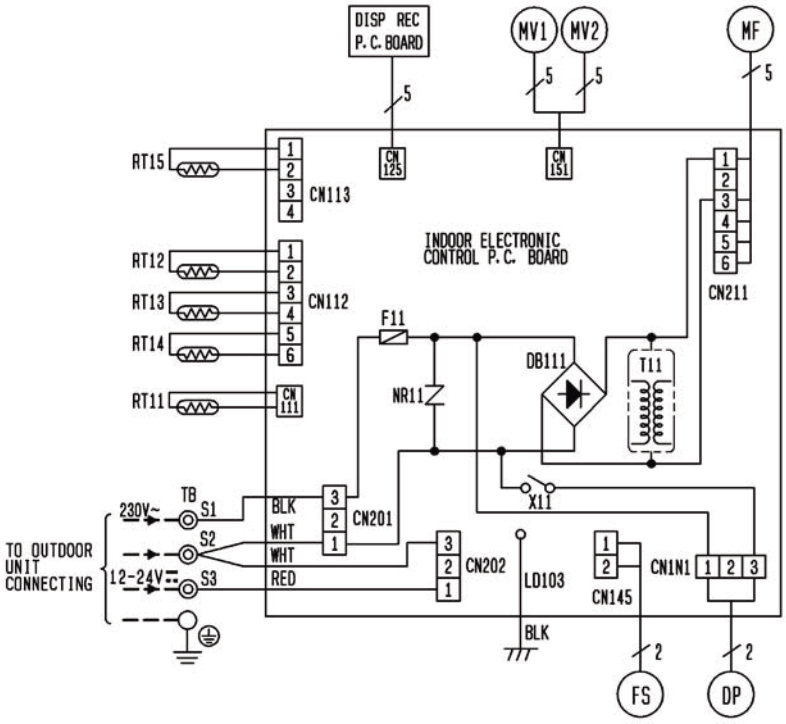


SYMBOL	NAME	SYMBOL	NAME
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	HORIZONTAL VANE MOTOR	RT12	COIL TEMP. THERMISTOR(MAIN)
MV2	VERTICAL VANE MOTOR	RT13	COIL TEMP. THERMISTOR(SUB)
DP	DRAIN PUMP	DB111	DIODE STACK
FS	FLOAT SENSOR	NR11	VARISTOR
F11	FUSE (T3.15AL250V)	T11	TRANSFORMER
X11	RELAY	R111	RESISTOR

NOTES:
1.About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2.Use copper conductors only. (For field wiring)
3.Symbols below indicate.

: Terminal block
: Connector

MLZ-KA50VA- E1

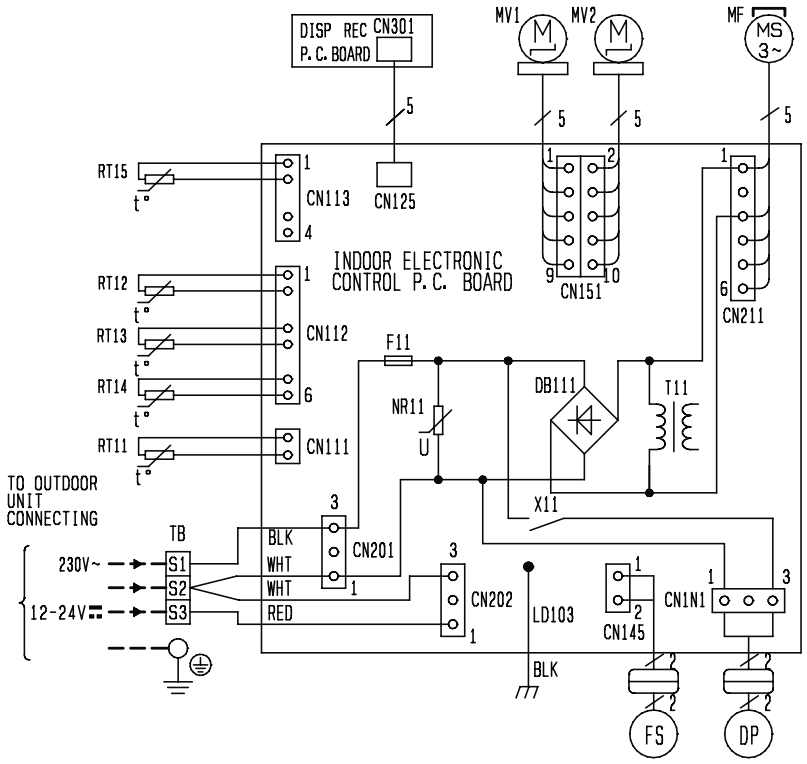


SYMBOL	NAME	SYMBOL	NAME
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	HORIZONTAL VANE MOTOR	RT12	COIL TEMP. THERMISTOR (MAIN1)
MV2	VERTICAL VANE MOTOR	RT13	COIL TEMP. THERMISTOR (SUB)
DP	DRAIN PUMP	RT14	COIL TEMP. THERMISTOR (MAIN2)
FS	FLOAT SENSOR	RT15	COIL TEMP. THERMISTOR (MAIN3)
F11	FUSE (T3. 15AL250V)	DB111	DIODE STACK
T11	TRANSFORMER	NR11	VARISTOR
X11	RELAY		

NOTES: 1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.

◎ : Terminal block
: Connector

MLZ-KA50VA- E2



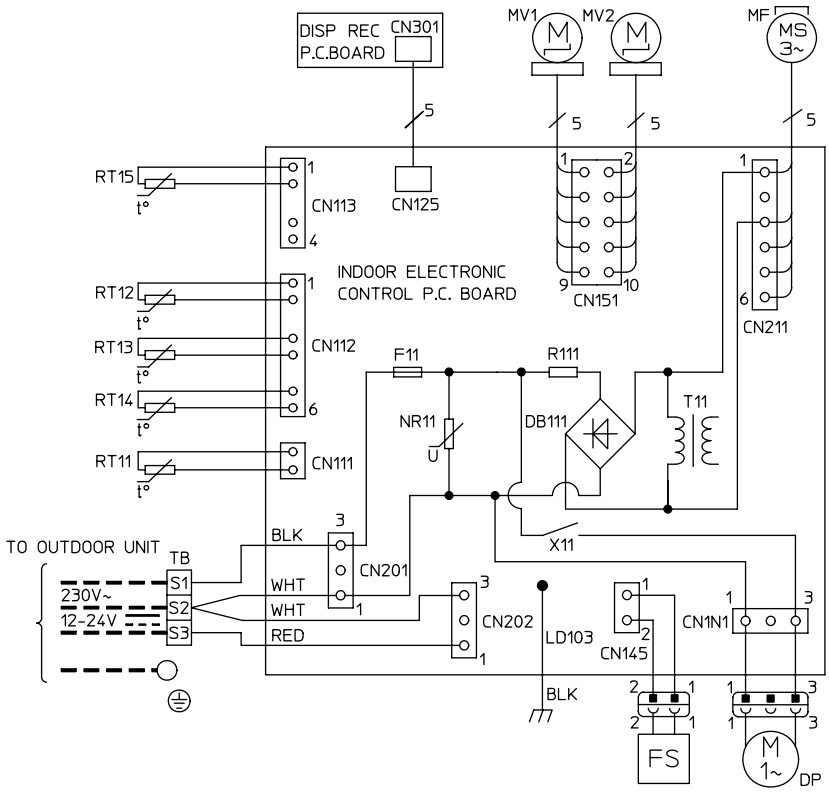
SYMBOL	NAME	SYMBOL	NAME
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	HORIZONTAL VANE MOTOR	RT12	COIL TEMP. THERMISTOR (MAIN1)
MV2	VERTICAL VANE MOTOR	RT13	COIL TEMP. THERMISTOR (SUB)
DP	DRAIN PUMP	RT14	COIL TEMP. THERMISTOR (MAIN2)
FS	FLOAT SENSOR	RT15	COIL TEMP. THERMISTOR (MAIN3)
F11	FUSE (T3.15AL250V)	DB111	DIODE STACK
T11	TRANSFORMER	NR11	VARISTOR
X11	RELAY		

NOTES:

1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.

: Terminal block
: Connector

MLZ-KA50VA- E3



SYMBOL	NAME	SYMBOL	NAME
MF	FAN MOTOR	RT11	ROOM TEMP. THERMISTOR
MV1	HORIZONTAL VANE MOTOR	RT12	COIL TEMP. THERMISTOR(MAIN1)
MV2	VERTICAL VANE MOTOR	RT13	COIL TEMP. THERMISTOR(SUB)
DP	DRAIN PUMP	RT14	COIL TEMP. THERMISTOR(MAIN2)
FS	FLOAT SENSOR	RT15	COIL TEMP. THERMISTOR(MAIN3)
F11	FUSE (T3.15AL250V)	DB111	DIODE STACK
T11	TRANSFORMER	NR11	VARISTOR
X11	RELAY	R111	RESISTOR

NOTES:

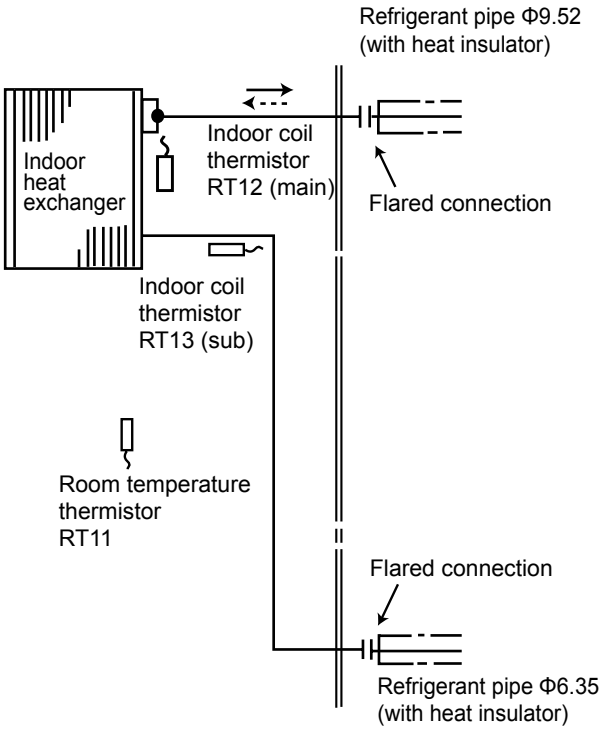
1. About the outdoor side electric wiring refer to the outdoor unit electric wiring diagram for servicing.
2. Use copper conductors only. (For field wiring)
3. Symbols below indicate.

: Terminal block
: Connector

7 REFRIGERANT SYSTEM DIAGRAM

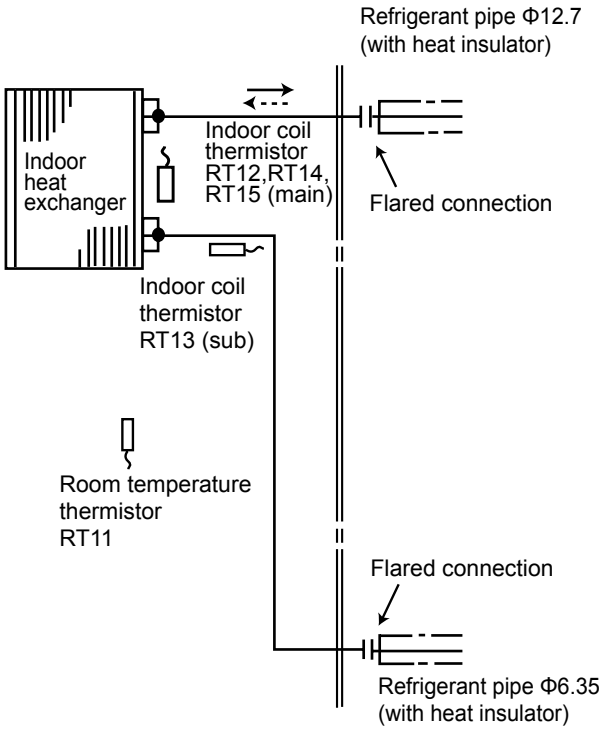
INDOOR UNIT

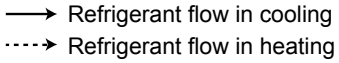
MLZ-KA25VA
MLZ-KA35VA



MLZ-KA50VA

Unit : mm





8 SERVICE FUNCTIONS

MLZ-KA25VA
MLZ-KA35VA
MLZ-KA50VA

8-1. TIMER SHORT MODE

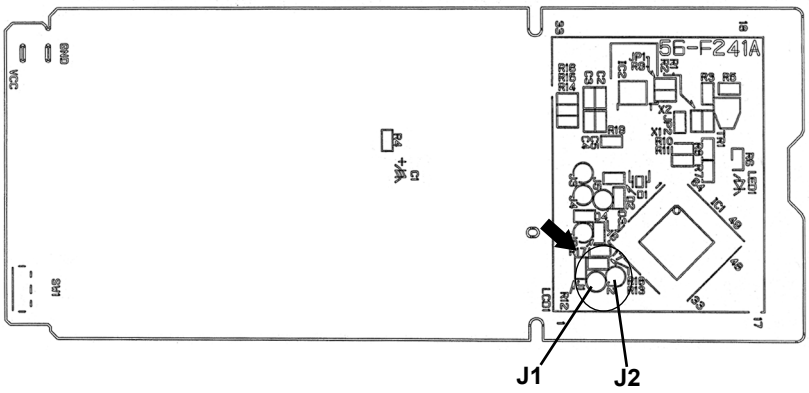
For service, the following set time can be shortened by short circuit of JPG and JPS on the electronic control P.C. board. (Refer to 10-7.)
Set time : 3-minute → 3-second (It takes 3 minutes for the compressor to start operation. However, the starting time is shortened by short circuit-of JPG and JPS.)

8-2. P.C. BOARD MODIFICATION FOR INDIVIDUAL OPERATION

A maximum of 4 indoor units with wireless remote controllers can be used in a room.
In this case, to operate each indoor unit individually by each remote controller, both the P.C. boards of remote controller and the electronic control P.C. boards must be modified according to the number of the indoor unit.

How to modify the remote controller P.C. board

Remove batteries before modification.
The board has a print as shown below:



NOTE: For modification, take out the batteries and press the OPERATE/STOP (ON/OFF) button 2 or 3 times at first.
After modification, put back the batteries then press the RESET button.

The P.C. board has the print “J1” and “J2”. Solder “J1” and “J2” according to the number of indoor unit as shown in Table 1.
After modification, press the RESET button.

Table 1

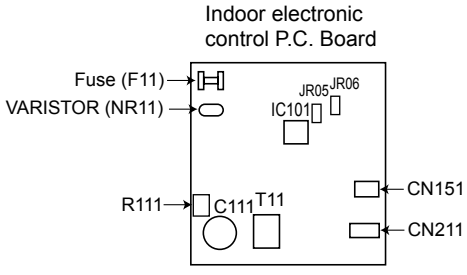
	1 unit operation	2 units operation	3 units operation	4 units operation
No. 1 unit	No modification	Same as at left	Same as at left	Same as at left
No. 2 unit	–	Solder J1	Same as at left	Same as at left
No. 3 unit	–	–	Solder J2	Same as at left
No. 4 unit	–	–	–	Solder both J1 and J2

How to modify the electronic control P.C. board

Turn OFF the power supply before modification. Cut off “JR05” and “JR06” on the electronic control P.C. board according to the number of indoor unit as shown in Table 2. (Refer to 10-7.)

Table 2

	JR05	JR06
No. 1 unit	No modification	No modification
No. 2 unit	Cut off JR05	No modification
No. 3 unit	No modification	Cut off JR06
No. 4 unit	Cut off JR05	Cut off JR06



NOTE: After modification, turn ON the power supply and with the remote controller headed towards the indoor unit, press the OPERATE/STOP (ON/OFF) button. If one or two beeps is heard from the indoor unit, modification is completed correctly.

8-3. AUTO RESTART FUNCTION

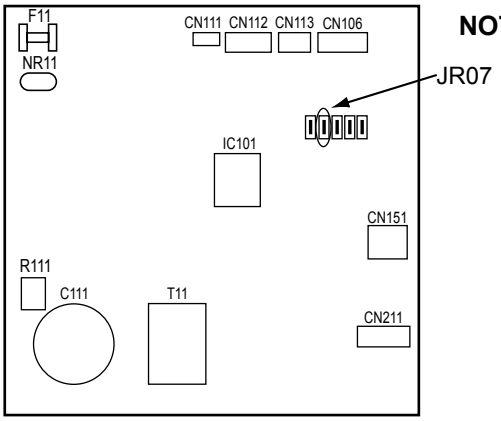
When the indoor unit is controlled with the remote controller, the operation mode, the set temperature, and the fan speed are memorized by the indoor electronic control P.C. board. “AUTO RESTART FUNCTION” automatically starts operation in the same mode just before the shutoff of the main power.

Operation

① If the main power has been cut, the operation settings remain.
② After the power is restored, the unit restarts automatically according to the memory.
(However, it takes at least 3 minutes for the compressor to start running.)

How to disable “AUTO RESTART FUNCTION”

① Turn off the main power for the unit.
② Solder the Jumper wire to JR07 on the indoor electronic control P.C. board. (Refer to 10-7.)



NOTE:

- The operation settings are memorized when 10 seconds have passed after the indoor unit was operated with the remote controller.
- If main power is turned OFF or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled.
- If the unit has been off with the remote controller before power failure, the auto restart function does not work as the power button of the remote controller is off.
- To prevent breaker tripping due to the rush of starting current, systematize other home appliance not to turn on at the same time.
- When some air conditioners are connected to the same supply system, if they are operated before power failure, the starting current of all the compressors may flow simultaneously at restart.
  Therefore, the special counter-measures are required to prevent the main voltage-drop or the rush of the starting current by adding to the system that allows the units to start one by one.

8-4. P.C. BOARD MODIFICATION FOR CHANGING AIRFLOW VOLUME

Change dip switch SW3 setting according to the height of ceiling.

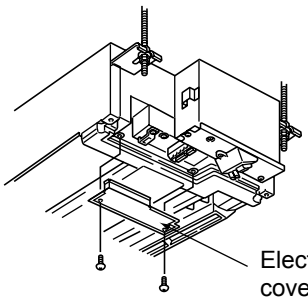
Dip switch SW3	Normal	Increase airflow volume
Ceiling height	2.4 m or below	above 2.4 m and 2.7 m or below

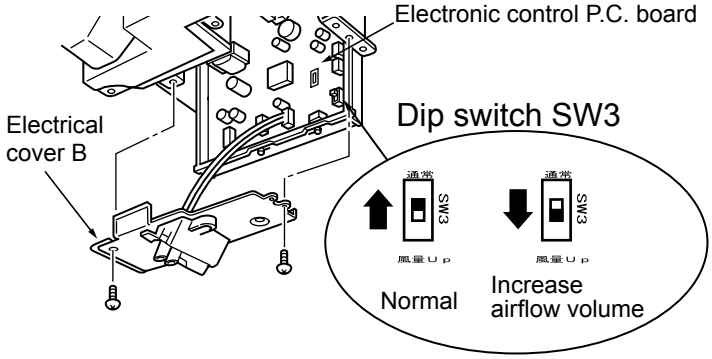
NOTE: When the ceiling is above 2.7 m, airflow volume may be insufficient even with the Dip switch (SW3) set to "increase airflow.

How to change Dip switch (SW3) setting (Default setting is Normal)

1. Turn OFF the power supply for the air conditioner.
2. Remove electrical cover A and B.
3. Slide out electronic control P.C. board, and switch up or down Dip switch (SW3).
4. Put electronic control P.C. board back to the original position, and install electrical cover A and B.

NOTE:
To prevent damage of P.C. board due to static electricity, make sure to perform static elimination before setting.

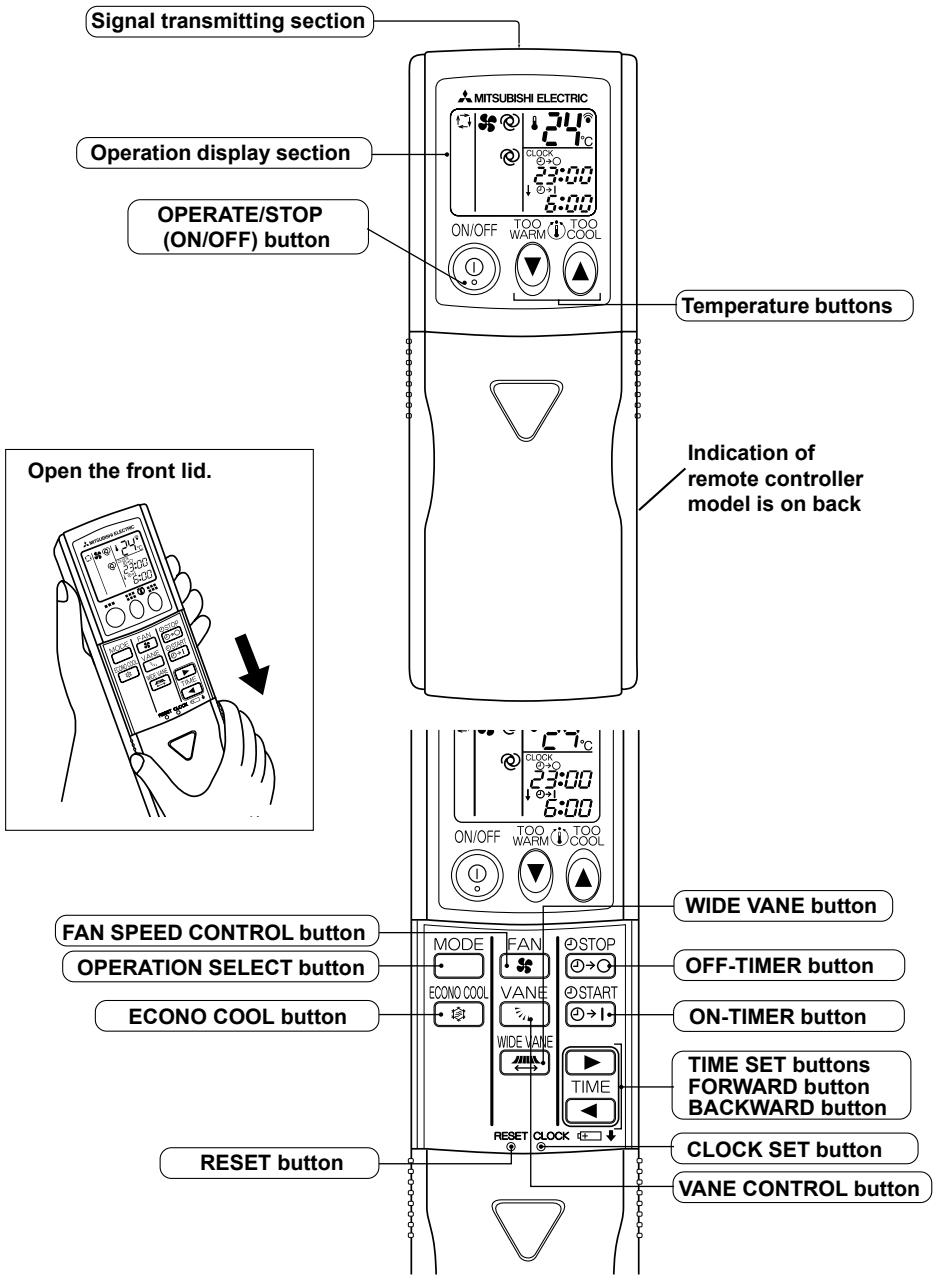




9 MICROPROCESSOR CONTROL

MLZ-KA25VA
MLZ-KA35VA
MLZ-KA50VA

WIRELESS REMOTE CONTROLLER



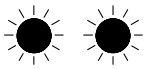
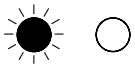
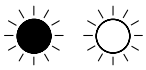
NOTE:

- The last setting will be stored after the unit is turned off with the remote controller.
- Indoor unit receives the signal of the remote controller with beeps.

INDOOR UNIT DISPLAY SECTION

Operation Indicator lamp

The operation indicator at the left side of the indoor unit indicates the operation state.

Indication	Operation state	Difference between target temperature and room temperature
	This shows that the air conditioner is operating to reach the target temperature. Please wait until the target temperature is obtained.	Approximate 2ºC or more
	This shows that the room temperature is approaching the target temperature.	Approximate 2ºC or less
	This shows a state of standby for operation. (For multi system air conditioner)	——

Lighted

Blinking

Not lighted

9-1. COOL (☼) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select COOL mode with OPERATION SELECT button.
(3) Press TEMPERATURE buttons (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 16 ~ 31°C.

1. Coil frost prevention

When the temperature of indoor heat exchanger becomes too low, the coil frost prevention mode works.
The indoor fan operates at the set speed and the compressor stops. This mode continues until the temperature of indoor heat exchanger rises.

9-2. DRY (△) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select DRY mode with OPERATION SELECT button.
(3) The set temperature is determined from the initial room temperature.

1. Coil frost prevention

Coil frost prevention is as same as COOL mode. (9-1.1.)

9-3. HEAT (☼) OPERATION

(1) Press OPERATE/STOP (ON/OFF) button.
OPERATION INDICATOR lamp of the indoor unit turns on with a beep tone.
(2) Select HEAT mode with OPERATION SELECT button.
(3) Press TEMPERATURE buttons (TOO WARM or TOO COOL button) to select the desired temperature.
The setting range is 16 ~ 31°C.

1. Cold air prevention control

When the compressor is not operating or is starting, and the temperature of indoor heat exchanger and/or the room temperature is low or when defrosting is being done, the indoor fan will stop or rotate in Very Low speed.

9-4. AUTO CHANGE OVER ··· AUTO MODE OPERATION

Once desired temperature is set, unit operation is switched automatically between COOL and HEAT operation.

Mode selection

(1) Initial mode
When unit starts the operation with AUTO operation from off;
• If the room temperature is higher than the set temperature, operation starts in COOL mode.
• If the room temperature is equal to or lower than the set temperature, operation starts in HEAT mode.

(2) Mode change
COOL mode changes to HEAT mode when about 15 minutes have passed with the room temperature 2 degrees below the set temperature.
HEAT mode changes to COOL mode when about 15 minutes have passed with the room temperature 2 degrees above the set temperature.

NOTE:

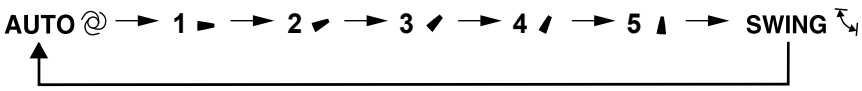
If two or more indoor units are operating in multi system, there might be a case that the indoor unit, which is operating in ⇄ (AUTO), cannot change over to the other operating mode (COOL ⟷ HEAT) and becomes a state of standby.

9-5. AUTO VANE OPERATION

1. Horizontal vane

(1) Vane motor drive
These models are equipped with a stepping motor for the horizontal vane. The rotating direction, speed, and angle of the motor are controlled by pulse signals (approximately 12V) transmitted from indoor microprocessor.

(2) The horizontal vane angle and mode change as follows by pressing VANE CONTROL button.

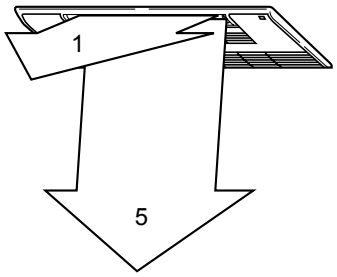


(3) Positioning
To confirm the standard position, the vane moves until it touches the vane stopper. Then the vane is set to the desired angle.
Confirming of standard position is performed in the following cases:
(a) When the power supply turns on.
(b) When the operation starts or finishes (including timer operation).
(c) When the test run starts.
(d) When multi-standby starts or finishes.
(e) When the swing operation finishes.

(4) VANE AUTO mode
In VANE AUTO mode, the microprocessor automatically determines the vane angle and operation to make the optimum room-temperature distribution.

(1) In COOL and DRY operation — Vane angle is fixed to Angle 1.

(2) In HEAT operation — Vane angle is fixed to Angle 5.



(5) STOP (operation OFF) and ON-TIMER standby
In the following cases, the horizontal vane returns to the closed position.
(a) When OPERATE/STOP (ON/OFF) button is pressed (POWER OFF).
(b) When the operation is stopped by the emergency operation.
(c) When ON-TIMER is ON standby.

(6) SWING MODE
By selecting SWING mode with VANE CONTROL button, the horizontal vane swings vertically. The remote controller displays "". SWING mode is cancelled when VANE CONTROL button is pressed once again.

(7) Cold air prevention in HEAT operation
The horizontal vane position is set to Upward.

(8) ECONO COOL operation (ECONOmical operation)
When ECONO COOL button is pressed in COOL mode, set temperature is automatically set 2°C higher.
Also the horizontal vane swings in various cycle.
SWING operation makes you feel cooler than set temperature. So, even though the set temperature is higher, the air conditioner can keep comfort. As a result, energy can be saved.
To cancel this operation, select a different mode or press one of the following buttons in ECONO COOL operation: ECONO COOL or VANE CONTROL button.

2. Vertical vane

(1) Press WIDE VANE button to change horizontal airflow direction.
- •The vertical vane moves for about 30 seconds.
(After 30 seconds, the vertical vane moves to its original position. In this case, press WIDE VANE button again.)

(2) Press WIDE VANE button again to set horizontal airflow direction.
- •The vertical vane stops and the airflow direction is set.

(3) Positioning
To confirm the standard position, the vane moves until it touches the vane stopper. Then the vane set to the desired angle.
Confirming of standard position is performed in the following cases:
(a) When OPERATE/STOP (ON/OFF) button is pressed (POWER ON).
(b) When SWING is started.

9-6. DRAIN PUMP/ FLOAT SENSOR CONTROL

1. Drain pump

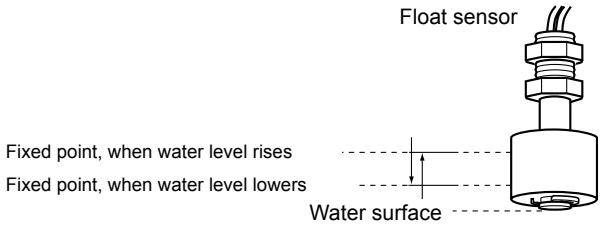
Operating condition:
1. During COOL, DRY, or emergency COOL operation
2. When float sensor detects water level above fixed point during:
   (a) HEAT operation.
   (b) emergency HEAT operation.
   (c) standby when during multi system operation.
   (d) standby when ON timer is set.
   (e) operation STOP.

Drain pump operates in conditions 1 or 2.

Operation stop condition:
Condition other than 1 or 2 indicated above.

2. Float sensor

Float moves with the up and down of water surface inside the drain pan, and judges water level.
(Fixed point differs at raised and lowered water levels.)



9-7. TIMER OPERATION

1. How to set the time

(1) Press OPERATE/STOP (ON/OFF) button to start the air conditioner.
(2) Check that the current time is set correctly.
NOTE: Timer operation will not work without setting the current time. Initially “AM0:00” blinks at the current time display of TIME MONITOR, so set the current time correctly with CLOCK SET button.

How to set the current time

(1) Press the CLOCK set button.
(2) Press the TIME SET buttons (► and ◄) to set the current time.
- Each time FORWARD button (►) is pressed, the set time increases by 1 minute, and each time BACKWARD button (◄) is pressed, the set time decreases by 1 minute.
- Pressing those buttons longer increases/decreases the set time by 10 minutes.

Press the CLOCK set button.

ON timer setting

(1) Press ON-TIMER button (START) during operation.
(2) Set the time of the timer using TIME SET buttons (► and ◄) . ※

OFF timer setting

(1) Press OFF-TIMER button (STOP) during operation.
(2) Set the time of the timer using TIME SET buttons (► and ◄). ※

※ Each time FORWARD button (►) is pressed, the set time increases by 10 minutes; each time BACKWARD button (◄) is pressed, the set time decreases by 10 minutes.

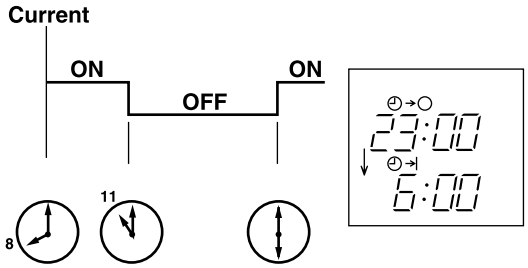
2. Cancel

To cancel ON timer, press ON-TIMER button (START).
To cancel OFF timer, press OFF-TIMER button (STOP).
TIMER is cancelled and the display of set time disappears.

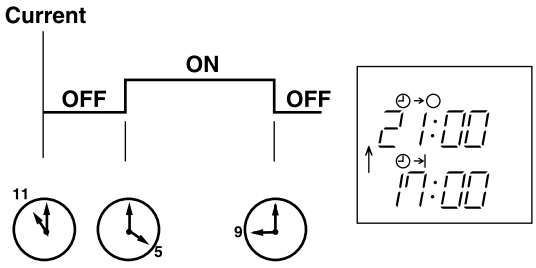
PROGRAM TIMER

• OFF timer and ON timer can be used in combination. The timer of the set time that is reached first will operate first.
• " ↑ " and " ↓ " display show the order of OFF timer and ON timer operation.

(Example 1) The current time is 8:00 PM.
The unit turns OFF at 11:00 PM, and ON at 6:00 AM.



(Example 2) The current time is 11:00 AM.
The unit turns ON at 5:00 PM, and OFF at 9:00 PM.

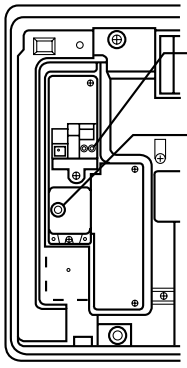


NOTE: If the main power is turned off or a power failure occurs while AUTO START/STOP timer is active, the timer setting is cancelled. As these models are equipped with an auto restart function, the air conditioner starts operating with timer cancelled when power is restored.

9-8. EMERGENCY/TEST OPERATION

In case of test run operation or emergency operation, use EMERGENCY OPERATION switch on the front of the indoor unit. Emergency operation is available when the remote controller is missing, has failed or the batteries of the remote controller run down. The unit will start and OPERATION INDICATOR lamp will light.
The first 30 minutes of operation is the test run operation. This operation is for servicing. The indoor fan runs at High speed and the temperature control does not work.
After 30 minutes of test run operation, the system shifts to EMERGENCY COOL/HEAT MODE with a set temperature of 24°C. The fan speed shifts to Med.
The coil frost prevention works even in the test run or the emergency operation, and defrosting too.
In the test run or emergency operation, the horizontal vane operates in VANE AUTO ( ) mode.
Emergency operation continues until EMERGENCY OPERATION switch is pressed once or twice or the unit receives any signal from the remote controller. In case of latter, normal operation will start.

NOTE: Do not press EMERGENCY OPERATION switch during normal operation.



Operation mode	COOL	HEAT
Set temperature	24ºC	24ºC
Fan speed	Medium	Medium
Horizontal vane	Auto	Auto

The operation mode is indicated by the Operation indicator lamp on the indoor unit as following

Operation Indicator lamp

Press once <COOL> ☀ ○
Press again <HEAT> ○ ☀
Press once again <STOP> ○ ○

☀ Lighted
○ Not lighted

9-9. 3-MINUTE TIME DELAY OPERATION

When the system turns OFF, compressor will not restart for 3 minutes as 3-minute time delay function operates to protect compressor from overload.

10 TROUBLESHOOTING

MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA

10-1. CAUTIONS ON TROUBLESHOOTING

1. Before troubleshooting, check the following:

1) Check the power supply voltage.
2) Check the indoor/outdoor connecting wire for miswiring.

2. Take care of the following during servicing

1) Before servicing the air conditioner, be sure to turn off the unit first with the remote controller, and then after confirming the horizontal vane is closed, turn off the breaker and/or disconnect the power plug.
2) Be sure to turn OFF the power supply before removing the front panel, the cabinet, the top panel, and the electronic control P.C. board.
3) When removing the electronic control P.C. board, hold the edge of the board with care NOT to apply stress on the components.
4) When connecting or disconnecting the connectors, hold the housing of the connector. DO NOT pull the lead wires.

<Incorrect> <Correct>

Lead wiring **Housing point**

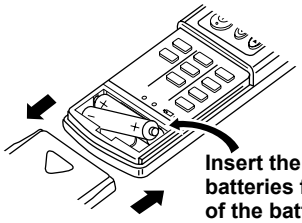
3. Troubleshooting procedure

1) Check if the OPERATION INDICATOR lamp on the indoor unit is flashing ON and OFF to indicate an abnormality. To make sure, check how many times the OPERATIONAL INDICATOR lamp is flashing ON and OFF before starting service work.
2) Before servicing, check that the connector and terminal are connected properly.
3) When the electronic control P.C. board seems to be defective, check the copper foil pattern for disconnection and the components for bursting and discoloration.
4) Refer to 10-2, 10-3 and 10-4.

4. How to replace batteries

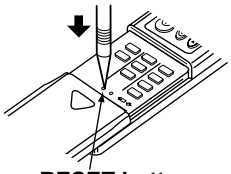
Weak batteries may cause the remote controller malfunction.
In this case, replace the batteries to operate the remote controller normally.

① Remove the front lid and insert batteries. Then reattach the front lid.



Insert the negative pole of the batteries first. Check if the polarity of the batteries is correct.

② Press RESET button with a thin instrument, and then use the remote controller.



RESET button

NOTE: 1. If RESET button is not pressed, the remote controller may not operate correctly.
2. This remote controller has a circuit to automatically reset the microcomputer when batteries are replaced. This function is equipped to prevent the microcomputer from malfunctioning due to the voltage drop caused by the battery replacement.
3. Do not use the leaking batteries.

INFORMATION FOR MULTI SYSTEM AIR CONDITIONER

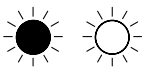
OUTDOOR UNIT : MXZ series

Multi system air conditioner can connect two or more indoor units with one outdoor unit.

•Unit will not operate in case the total capacity of indoor units exceeds the capacity of outdoor units. Do not connect indoor units beyond the outdoor unit capacity. Operation indicator lamp flashes as shown in the figure below.

•When you try to operate two or more indoor units with one outdoor unit simultaneously, one for the cooling and the other for heating, the operation mode of the indoor unit that operates earlier is selected. The other indoor units cannot operate and indicate as shown in the figure below. In this case, please set all the indoor units to the same operation mode.

OPERATION INDICATOR



Lighted

Blinking

Not lighted

•When indoor units start operation while the defrosting of outdoor unit is being done, it takes a few minutes (maximum 10 minutes) to blow out the warm air.

•In the heating operation, though indoor unit that does not operate may get warm or the sound of refrigerant flowing may be heard, they are not malfunction. The reason is that the refrigerant continuously flows into it.

10-2. FAILURE MODE RECALL FUNCTION

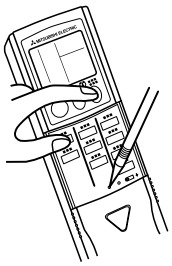
Outline of the function

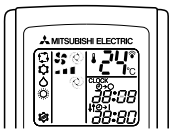
This air conditioner can memorize the abnormal condition which has occurred once.

Even though OPERATION INDICATOR lamp indication listed on the troubleshooting check table (10-4.) disappears, the memorized failure details can be recalled.

This mode is very useful when the unit needs to be repaired for the abnormality which does not recur.

1. Flow chart of failure mode recall function for the indoor/outdoor unit





※1.Regardless of normal or abnormal, a short beep is emitted once as the signal is received.

Operational procedure

The cause of abnormality cannot be found because the abnormality does not recur.

Setting up the failure mode recall function

Turn ON the power supply.
① While pressing both OPERATION SELECT button and TOO COOL button on the remote controller at the same time, press RESET button.
② First, release RESET button.
Hold down the other two buttons for another 3 seconds. Confirm that the indicators on the LCD screen shown in the right figure are all displayed. Then release the buttons.

Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1

Does the left lamp of OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: Either indoor or outdoor unit is abnormal.
Beep are emitted at the same timing as the blinking of the left lamp of OPERATION INDICATOR lamp. ※2

No (OFF) → Indoor unit is normal.
But the outdoor unit might be abnormal because there are some abnormalities that are not memorized in the indoor unit.
Confirm if outdoor unit is abnormal according to the flow chart of the detailed outdoor unit failure mode recall function.

Yes (Blinks)

Judgment of indoor/outdoor abnormality

Before blinking, does the left lamp of OPERATION INDICATOR lamp stay ON for 3 seconds?
Stays ON for 3 seconds (without beep):
The outdoor unit is abnormal.

Yes → The outdoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the outdoor unit failure mode table (Refer to outdoor unit service manual).
Make sure to check at least two consecutive blinking cycles. ※3

No → The indoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the indoor unit failure mode table (10-2. 3.).
Make sure to check at least two consecutive blinking cycles. ※2

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

As for outdoor unit, refer to outdoor unit service manual.

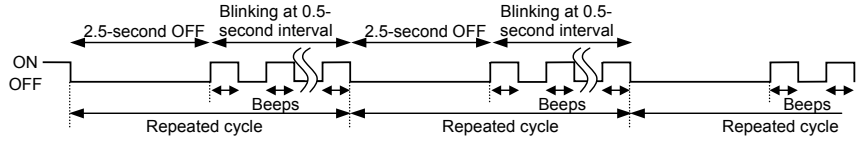
Repair the defective parts.

Deleting the memorized abnormal condition

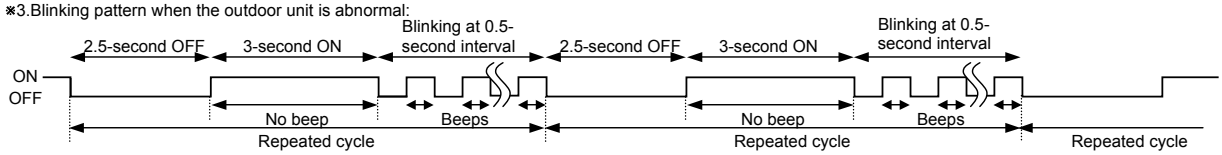
① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function".
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit. ※1
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function".

Note1.Make sure to release the failure mode recall function once it is set up, otherwise the unit cannot operate properly.
2.If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2. Blinking pattern when the indoor unit is abnormal:



※3.Blinking pattern when the outdoor unit is abnormal:



2. Flow chart of the detailed outdoor unit failure mode recall function

Operational procedure

The outdoor unit might be abnormal.
Confirm if outdoor unit is abnormal according to the following procedures.

Confirm that the remote controller is in the failure mode recall function.

With the remote controller headed towards the indoor unit, press TOO COOL or TOO WARM button to adjust the set temperature to 25ºC. ※1

※1. Regardless of normal or abnormal, 2 short beeps are emitted as the signal is received.

Does OPERATION INDICATOR lamp on the indoor unit blink at the interval of 0.5 seconds?
Blinks: The outdoor unit is abnormal.
Beeps are emitted at the same timing as the blinking of OPERATION INDICATOR lamp. ※2

No (OFF)

Yes (Blinks)

The outdoor unit is abnormal.
Check the blinking pattern, and confirm the abnormal point with the outdoor unit failure mode table (Refer to outdoor unit service manual).
Make sure to check at least two consecutive blinking cycles. ※2

The outdoor unit is normal.

Releasing the failure mode recall function

Release the failure mode recall function by the following procedures.
Turn OFF the power supply and turn it ON again.
Press RESET button of the remote controller.

Release the failure mode recall function according to the left mentioned procedure.

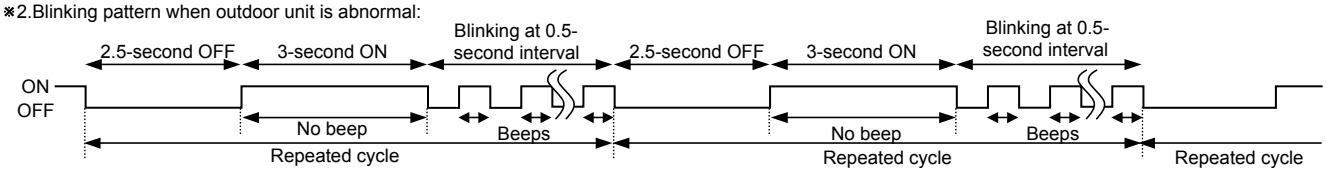
Repair the defective parts.

Deleting the memorized abnormal condition

① After repairing the unit, recall the failure mode again according to "Setting up the failure mode recall function".
② Press OPERATE/STOP (ON/OFF) button of the remote controller (the set temperature is displayed) with the remote controller headed towards the indoor unit.
③ Press EMERGENCY OPERATION switch so that the memorized abnormal condition is deleted.
④ Release the failure mode recall function according to "Releasing the failure mode recall function".

Note1. Make sure to release the failure mode recall function once it is set up, otherwise the unit cannot operate properly.
2. If the abnormal condition is not deleted from the memory, the last abnormal condition is kept memorized.

※2.Blinking pattern when outdoor unit is abnormal:

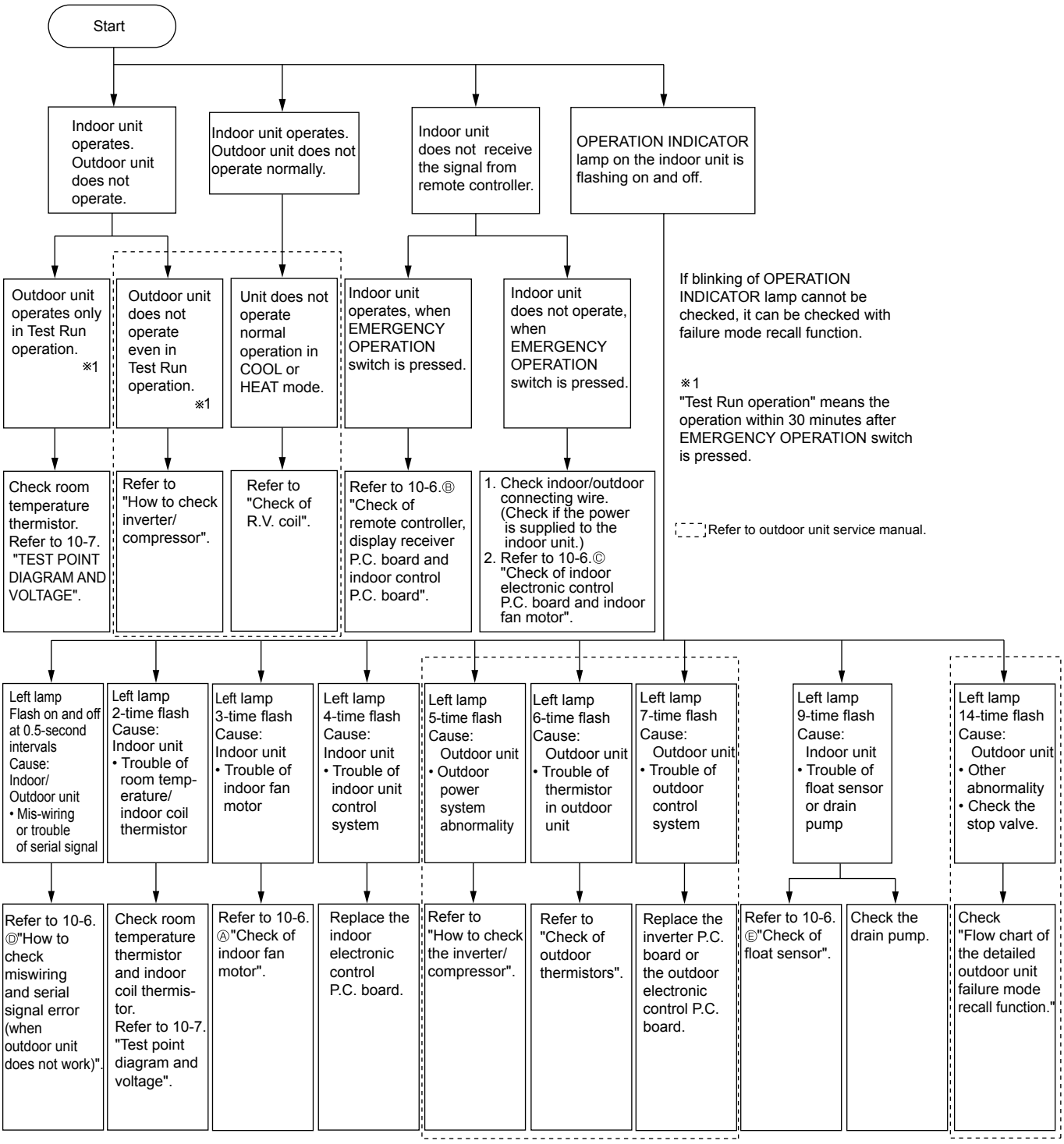


3. Indoor unit failure mode table

NOTE: Blinking patterns of this mode differs from the ones of Troubleshooting check table (10-4.).

Left lamp of OPERATION INDICATOR lamp	Right lamp of OPERATION INDICATOR lamp	Abnormal point (Failure mode)	Condition	Remedy
Not lighted	Not lighted	Normal	–	–
1-time flash every 0.5-second	Not lighted	Room temperature thermistor	When the room temperature thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristics of the room temperature thermistor (10-7.).
2-time flash 2.5-second OFF	Not lighted	Indoor coil thermistor (Main 1, 2 and sub) **[Main 2:MLZ-KA50VA]**	When the indoor coil thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristic of the main 1,2 indoor coil thermistor and the sub indoor coil thermistor (10-7.).
3-time flash 2.5-second OFF	Not lighted	Serial signal error	When the serial signal from the outdoor unit is not received for a maximum of 6 minutes.	Refer to 10-6.Ⓓ "How to check miswiring and serial signal error".
5-time flash 2.5-second OFF	Not lighted	Drain pump Float sensor	• Float sensor is open. • Float sensor detects abnormal water level.	• Check float sensor and drain pump. • Check the connectors of float sensor and drain pump. • Refer to 10-6.Ⓔ "Check of float sensor".
11-time flash 2.5-second OFF	Not lighted	Indoor fan motor	When the rotational frequency feedback signal is not emitted during 12-second the indoor fan operation.	Refer to 10-6.Ⓐ "Check of indoor fan motor"
12-time flash 2.5-second OFF	Not lighted	Indoor control system	When it cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	Replace the indoor electronic control P.C. board.
13-time flash 2.5-second OFF	Not lighted	Indoor coil thermistor (Main 3) **[MLZ-KA50VA]**	When the indoor coil thermistor short or open circuit is detected every 8 seconds during operation.	Refer to the characteristic of the main 3 indoor coil thermistor (10-7.).

10-3. INSTRUCTION OF TROUBLESHOOTING


Start
Indoor unit operates. Outdoor unit does not operate.
Indoor unit operates. Outdoor unit does not operate normally.
Indoor unit does not receive the signal from remote controller.
OPERATION INDICATOR lamp on the indoor unit is flashing on and off.
Outdoor unit operates only in Test Run operation. ※1
Outdoor unit does not operate even in Test Run operation. ※1
Unit does not operate normal operation in COOL or HEAT mode.
Indoor unit operates, when EMERGENCY OPERATION switch is pressed.
Indoor unit does not operate, when EMERGENCY OPERATION switch is pressed.
If blinking of OPERATION INDICATOR lamp cannot be checked, it can be checked with failure mode recall function.
※1 "Test Run operation" means the operation within 30 minutes after EMERGENCY OPERATION switch is pressed.
Refer to outdoor unit service manual.
Check room temperature thermistor. Refer to 10-7. "TEST POINT DIAGRAM AND VOLTAGE".
Refer to "How to check inverter/ compressor".
Refer to "Check of R.V. coil".
Refer to 10-6.Ⓑ "Check of remote controller, display receiver P.C. board and indoor control P.C. board".
1. Check indoor/outdoor connecting wire. (Check if the power is supplied to the indoor unit.)
2. Refer to 10-6.Ⓒ "Check of indoor electronic control P.C. board and indoor fan motor".
Left lamp Flash on and off at 0.5-second intervals Cause: Indoor/ Outdoor unit • Mis-wiring or trouble of serial signal
Left lamp 2-time flash Cause: Indoor unit • Trouble of room temperature/ indoor coil thermistor
Left lamp 3-time flash Cause: Indoor unit • Trouble of indoor fan motor
Left lamp 4-time flash Cause: Indoor unit • Trouble of indoor unit control system
Left lamp 5-time flash Cause: Outdoor unit • Outdoor power system abnormality
Left lamp 6-time flash Cause: Outdoor unit • Trouble of thermistor in outdoor unit
Left lamp 7-time flash Cause: Outdoor unit • Trouble of outdoor control system
Left lamp 9-time flash Cause: Indoor unit • Trouble of float sensor or drain pump
Left lamp 14-time flash Cause: Outdoor unit • Other abnormality • Check the stop valve.
Refer to 10-6. Ⓓ"How to check miswiring and serial signal error (when outdoor unit does not work)".
Check room temperature thermistor and indoor coil thermistor. Refer to 10-7. "Test point diagram and voltage".
Refer to 10-6. Ⓐ"Check of indoor fan motor".
Replace the indoor electronic control P.C. board.
Refer to "How to check the inverter/ compressor".
Refer to "Check of outdoor thermistors".
Replace the inverter P.C. board or the outdoor electronic control P.C. board.
Refer to 10-6. Ⓔ"Check of float sensor".
Check the drain pump.
Check "Flow chart of the detailed outdoor unit failure mode recall function."

10-4. TROUBLESHOOTING CHECK TABLE

OPERATION INDICATOR

Lighted
Blinking
Not lighted

· Flashing of OPERATION INDICATOR lamp (left-hand side lamp) indicates abnormalities.

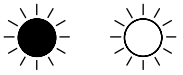
NOTE: Before taking measures, make sure that the symptom reappears for accurate troubleshooting.

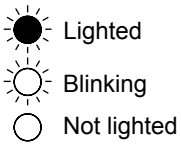
Self check table

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	Miswiring or serial signal	Left lamp flashes. 0.5-second ON 0.5-second OFF	Indoor unit and outdoor unit do not operate.	When the serial signal from the outdoor unit is not received for a maximum of 6 minutes.	• Refer to 10-6.Ⓓ "How to check miswiring and serial signal error".
2	Outdoor control system	Left lamp lights up.	Outdoor unit does not operate.	When it cannot properly read data in the nonvolatile memory of the inverter P.C. board or of the outdoor electronic control P.C. board.	• Check the blinking pattern of the LED on the inverter P.C. board or the outdoor electronic control P.C. board.
3	Indoor coil thermistor Room temperat-ure thermistor	Left lamp flashes. 2-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	When the indoor coil or the room temperature thermistor is shorts or opens circuit.	• Refer to the characteristics of indoor coil thermistor, and the room temperature thermistor on 10-7.
4	Indoor fan motor	Left lamp flashes. 3-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	When the rotational frequency feedback signal is not emitted during the indoor fan operation.	• Refer to 10-6.Ⓐ"Check of indoor fan motor".
5	Indoor control system	Left lamp flashes. 4-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	When it cannot properly read data in the nonvolatile memory of the indoor electronic control P.C. board.	• Replace the indoor electronic control P.C. board.
6	Outdoor power system	Left lamp flashes. 5-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	The compressor stops 3 times consecutively for over current protection or start-up failure protection within 1 minute after start-up.	• Refer to "Check of inverter/ compressor". Refer to outdoor unit service manual. Check the stop valve.
7	Outdoor thermistors	Left lamp flashes. 6-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	When the outdoor thermistors short or open circuit during the compressor operation.	• Refer to "Check of outdoor thermistor". Refer to outdoor unit service manual.
8	Outdoor control system	Left lamp flashes. 7-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	When it cannot properly read data in the nonvolatile memory of the inverter P.C. board or of the outdoor electronic control P.C. board.	• Replace the inverter P.C. board or the outdoor electronic control P.C. board. Refer to outdoor unit service manual.
9	Drain pump	Left lamp flashes. 9-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	• Float sensor is open. • Float sensor detects abnormal water level.	• Check float sensor characteristics. • Check drain pump. • Check drain pipe. • Check the connectors of float sensor and drain pump. • Refer to 10-6.Ⓔ"Check of float sensor".
10	Other abnormality	Left lamp flashes. 14-time flash 2.5-second OFF	Indoor unit and outdoor unit do not operate.	An abnormality other than above mentioned is detected.	• Confirm the abnormality in detail using the failure mode recall function. Refer to outdoor unit service manual.

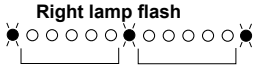
NOTE: When the indoor unit has started operation and the above failures are detected (the first detection after the power ON), the indoor electronic control P.C. board turns OFF the indoor fan motor with OPERATION INDICATOR lamp flashing.

OPERATION INDICATOR





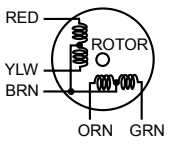
· Flashing of OPERATION INDICATOR lamp (right-hand side lamp) indicates abnormality.
· OPERATION INDICATOR lamp (left-hand side lamp) is lighted.

No.	Abnormal point	Operation indicator lamp	Symptom	Condition	Remedy
1	**MXZ type** Operation mode setting	**Right lamp flash**  2.5-second OFF	Outdoor unit operates but indoor unit does not operate.	When the operation mode of the each indoor unit is differently set to COOL (includes DRY) and HEAT at the same time, the operation mode of the indoor unit that has operated at first has the priority.	• Unify the operation mode. Refer to outdoor unit service manual.

NOTE: When the indoor unit has started operation and the above failures are detected (the first detection after the power ON), the indoor electronic control P.C. board turns OFF the indoor fan motor with OPERATION INDICATOR lamp flashing.

10-5. TROUBLE JUDGEMENT CRITERIA OF MAIN PARTS

MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA

Part name	Check method and criteria	Figure
Room temperature thermistor (RT11) Indoor coil thermistor (RT12,RT14,RT15 (MAIN), RT13 (SUB))	Measure the resistance with a tester. (Part temperature 10°C ~ 30°C) Normal: 8 kΩ ~ 20 kΩ	
Indoor fan motor	Check 10-6. Ⓐ.	
Float sensor (FS)	Disconnect connector and check with a tester. Check open or short according to the float position. Float position: Normal — Short (Float sensor, Float) — Open (Float sensor, Float)	
Drain pump (DP)	Measure the resistance between the terminals with a tester. (Part temperature 10ºC ~ 30ºC) Color of the lead wire: GRAY-GRAY — Normal: 520Ω ~ 620Ω	
Horizontal vane motor (MV1)	Measure the resistance between the terminals with a tester. (Part temperature 20ºC ~ 30ºC) Color of the lead wire: BRN-other one — Normal: Each phase 380Ω	
Vertical vane motor (MV2)	Measure the resistance between the terminals with a tester. (Part temperature 20ºC ~ 30ºC) Color of the lead wire: BRN-other one — Normal: Each phase 300Ω	

10-6. TROUBLESHOOTING FLOW

When the left lamp of OPERATION INDICATOR lamp flashes 3 times and the right lamp of OPERATION INDICATOR lamp is not lighted.
Indoor fan does not operate.

Ⓐ Check of indoor fan motor

The indoor fan motor error has occurred, and the indoor fan does not operate.

Turn OFF the power supply.

Is there anything that interferes the rotation of the line flow fan?

No

Yes

Remove the object and adjust the line flow fan.

Pay careful attention to the high voltage on the fan motor connector CN211.

Turn ON the power supply, wait 5 seconds or more, and then press EMERGENCY OPERATION switch.
Measure the supply voltage as follows within 12 seconds after EMERGENCY OPERATION switch is pressed.
If more than 12 seconds passes by, turn OFF the power supply and turn ON it again, then measure the voltage.※
1) Measure the voltage between CN211 ①(+) and ③(-).
2) Measure the voltage between CN211 ⑤(+) and ③(-).

※ If more than 12 seconds passes after EMERGENCY OPERATION switch is pressed, the voltage mentioned in above 2) goes 0V DC although the indoor electronic control P.C. board is normal.

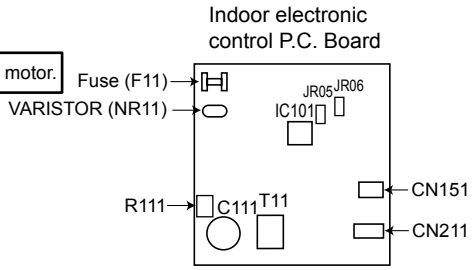
Is there 325V DC between CN211 ① (+) and ③ (-), and does the voltage between CN211 ⑤ (+) and ③ (-) rise to the range between 3 and 6V DC within 12 seconds after EMERGENCY OPERATION switch is pressed?

Yes

Replace the indoor fan motor.

No

Replace the indoor electronic control P.C. board.



The indoor fan motor error has occurred, and the indoor fan repeats "12-second ON and 30-second OFF" 3 times, and then stops.

Measure the voltage between CN211 ⑥(+) and ③(-) while the fan motor is rotating.

Is 0V DC or 15V DC held unchanged?

No (Changed)

Replace the indoor electronic control P.C. board.

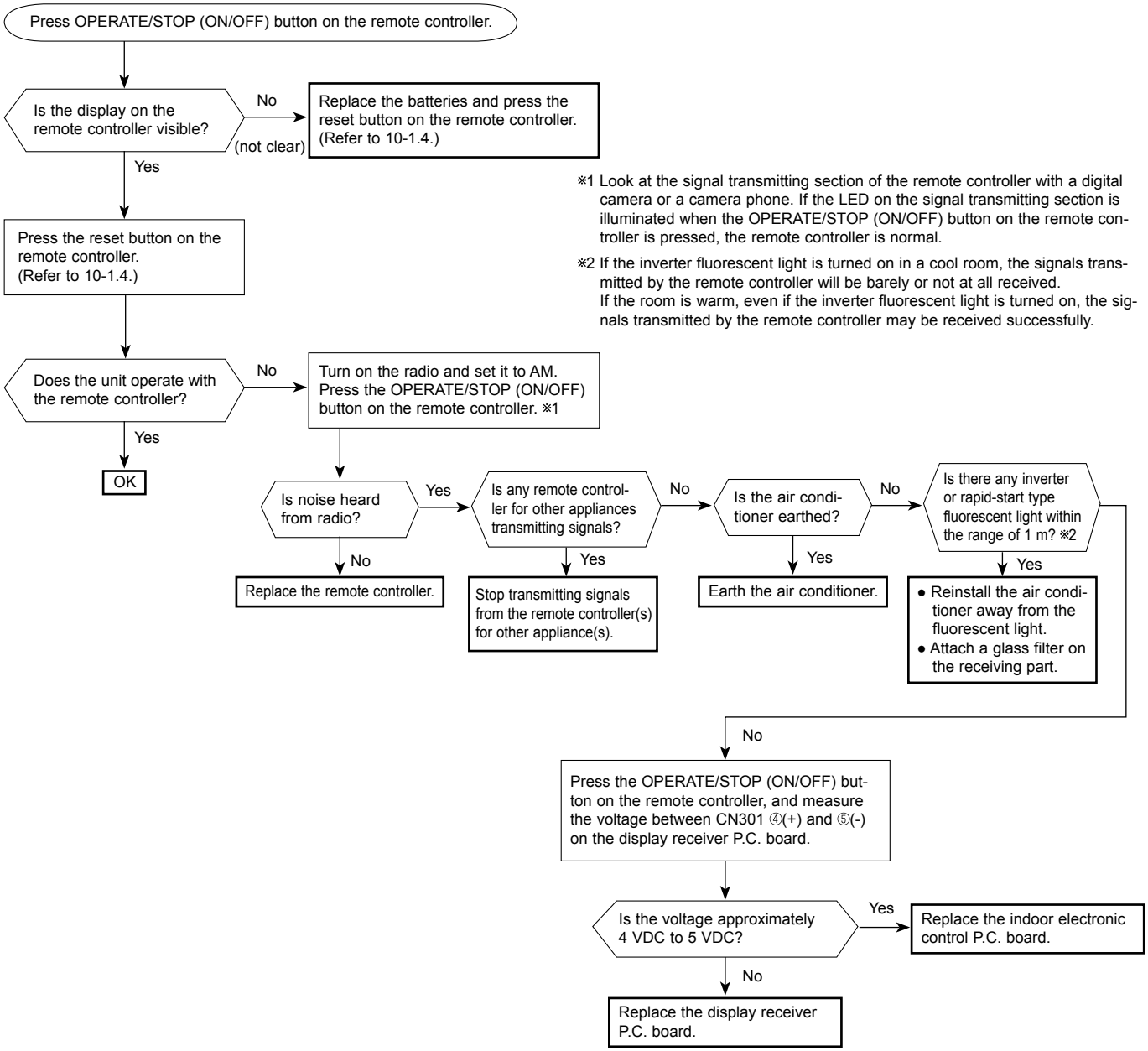
Yes (Unchanged)

Replace the indoor fan motor.

Indoor unit operates by pressing EMERGENCY OPERATION switch, but does not operate with the remote controller.

Ⓑ Check of remote controller, display receiver P.C. board and indoor control P.C. board

※ Check if the remote controller is exclusive for this air conditioner.

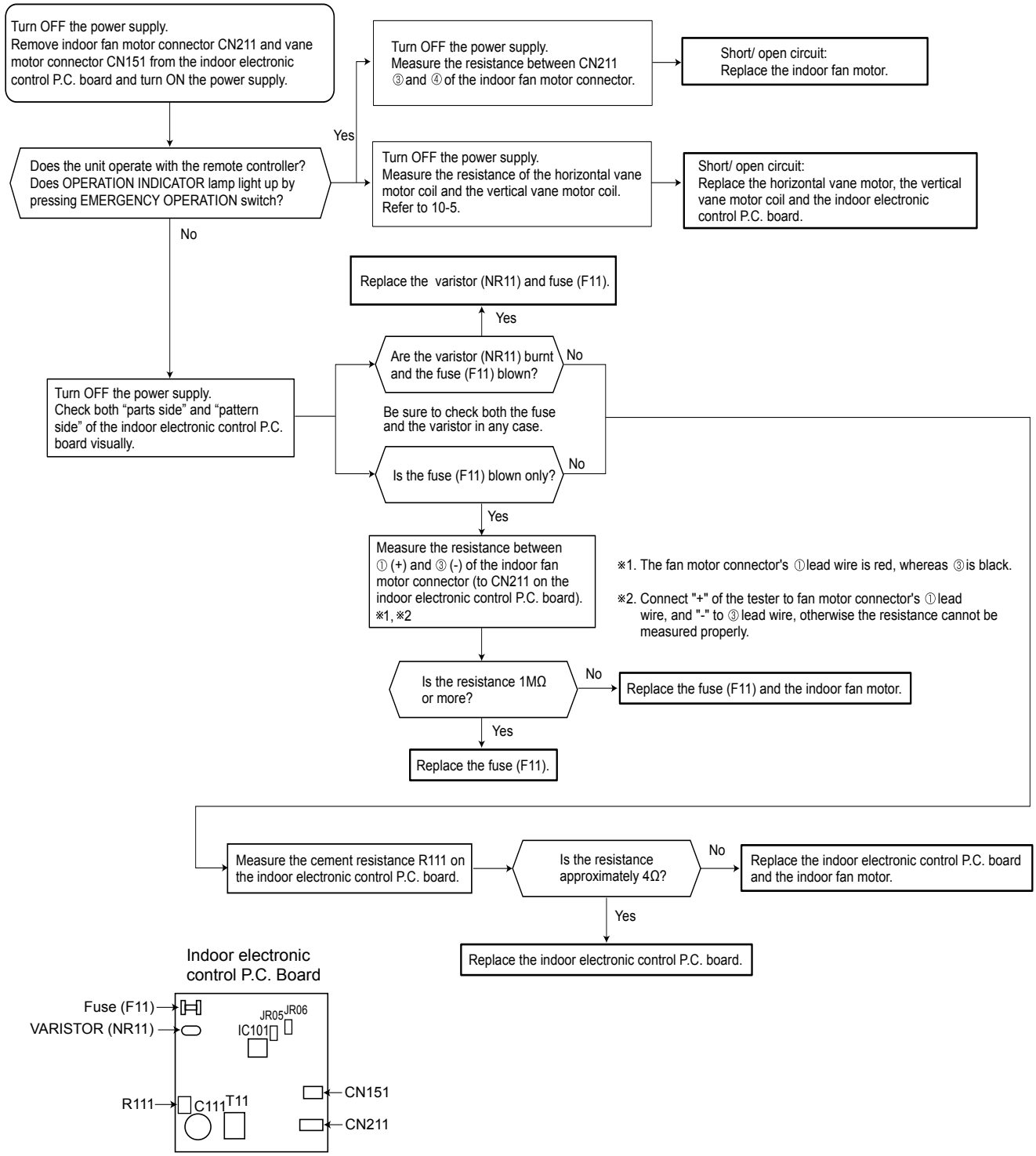

Press OPERATE/STOP (ON/OFF) button on the remote controller.
Is the display on the remote controller visible?
No
(not clear)
Replace the batteries and press the reset button on the remote controller. (Refer to 10-1.4.)
Yes
Press the reset button on the remote controller. (Refer to 10-1.4.)
Does the unit operate with the remote controller?
No
Turn on the radio and set it to AM. Press the OPERATE/STOP (ON/OFF) button on the remote controller. ※1
Yes
OK
Is noise heard from radio?
Yes
Is any remote controller for other appliances transmitting signals?
No
Is the air conditioner earthed?
No
Is there any inverter or rapid-start type fluorescent light within the range of 1 m? ※2
No
Replace the remote controller.
Yes
Stop transmitting signals from the remote controller(s) for other appliance(s).
Yes
Earth the air conditioner.
Yes
● Reinstall the air conditioner away from the fluorescent light.
● Attach a glass filter on the receiving part.
No
Press the OPERATE/STOP (ON/OFF) button on the remote controller, and measure the voltage between CN301 ④(+) and ⑤(-) on the display receiver P.C. board.
Is the voltage approximately 4 VDC to 5 VDC?
Yes
Replace the indoor electronic control P.C. board.
No
Replace the display receiver P.C. board.

※1 Look at the signal transmitting section of the remote controller with a digital camera or a camera phone. If the LED on the signal transmitting section is illuminated when the OPERATE/STOP (ON/OFF) button on the remote controller is pressed, the remote controller is normal.

※2 If the inverter fluorescent light is turned on in a cool room, the signals transmitted by the remote controller will be barely or not at all received.
If the room is warm, even if the inverter fluorescent light is turned on, the signals transmitted by the remote controller may be received successfully.

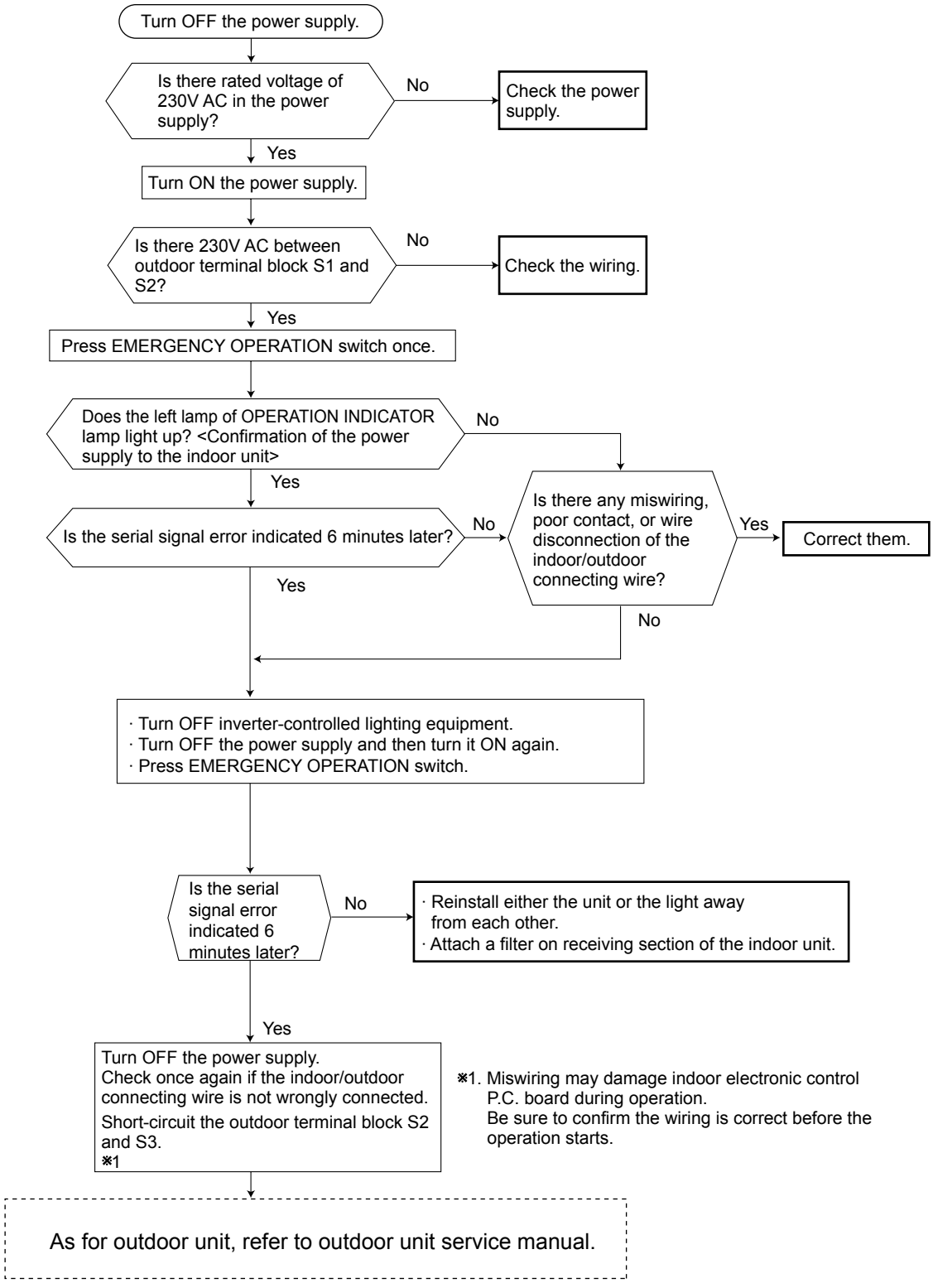
The unit cannot be operated with the remote controller.
Also, OPERATION INDICATOR lamp does not light up by pressing EMERGENCY OPERATION switch.

Ⓒ Check of indoor electronic control P.C. board and indoor fan motor


Turn OFF the power supply.
Remove indoor fan motor connector CN211 and vane motor connector CN151 from the indoor electronic control P.C. board and turn ON the power supply.
Turn OFF the power supply.
Measure the resistance between CN211 ③and ④of the indoor fan motor connector.
Short/ open circuit:
Replace the indoor fan motor.
Yes
Does the unit operate with the remote controller?
Does OPERATION INDICATOR lamp light up by pressing EMERGENCY OPERATION switch?
Turn OFF the power supply.
Measure the resistance of the horizontal vane motor coil and the vertical vane motor coil.
Refer to 10-5.
Short/ open circuit:
Replace the horizontal vane motor, the vertical vane motor coil and the indoor electronic control P.C. board.
No
Replace the varistor (NR11) and fuse (F11).
Yes
Are the varistor (NR11) burnt and the fuse (F11) blown?
No
Turn OFF the power supply.
Check both “parts side” and “pattern side” of the indoor electronic control P.C. board visually.
Be sure to check both the fuse and the varistor in any case.
Is the fuse (F11) blown only?
No
Yes
Measure the resistance between ① (+) and ③ (-) of the indoor fan motor connector (to CN211 on the indoor electronic control P.C. board). ※1, ※2
※1. The fan motor connector's ①lead wire is red, whereas ③is black.
※2. Connect "+" of the tester to fan motor connector's ①lead wire, and "-" to ③lead wire, otherwise the resistance cannot be measured properly.
Is the resistance 1MΩ or more?
No
Replace the fuse (F11) and the indoor fan motor.
Yes
Replace the fuse (F11).
Measure the cement resistance R111 on the indoor electronic control P.C. board.
Is the resistance approximately 4Ω?
No
Replace the indoor electronic control P.C. board and the indoor fan motor.
Yes
Replace the indoor electronic control P.C. board.
Indoor electronic control P.C. Board
Fuse (F11)
VARISTOR (NR11)
JR05
JR06
IC101
R111
C111
T11
CN151
CN211

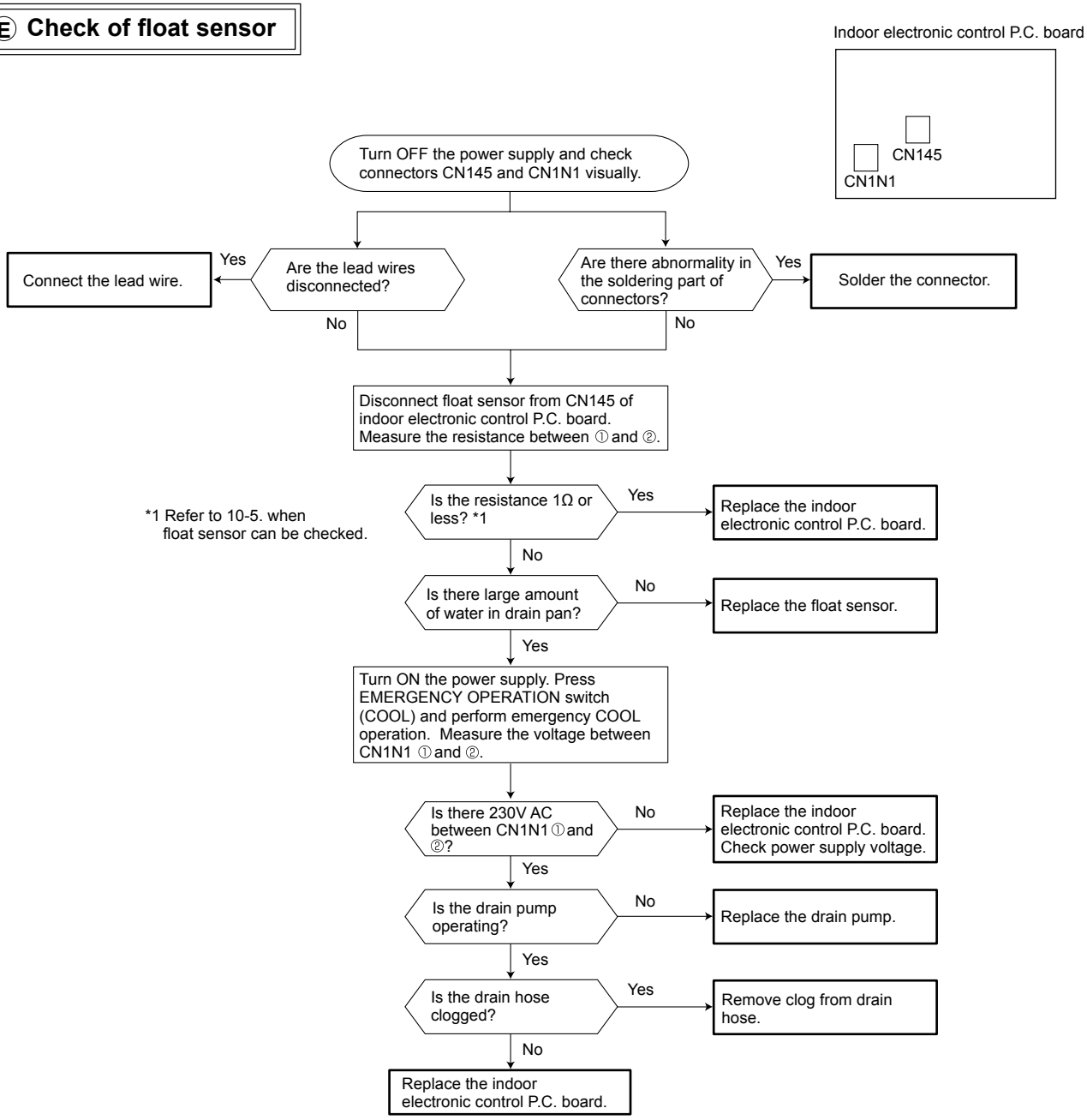
When the left lamp of OPERATION INDICATOR lamp flashes ON and OFF in every 0.5-second.
Outdoor unit does not operate.

Ⓓ How to check miswiring and serial signal error

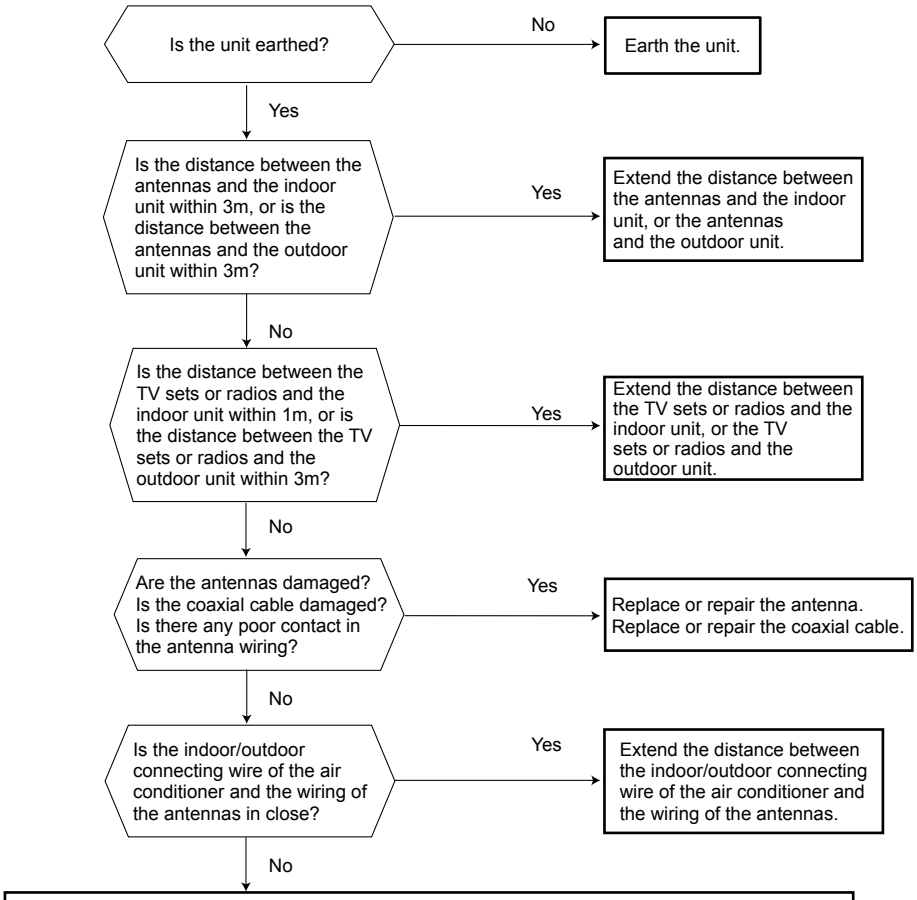

Turn OFF the power supply.
Is there rated voltage of 230V AC in the power supply?
No
Check the power supply.
Yes
Turn ON the power supply.
Is there 230V AC between outdoor terminal block S1 and S2?
No
Check the wiring.
Yes
Press EMERGENCY OPERATION switch once.
Does the left lamp of OPERATION INDICATOR lamp light up? <Confirmation of the power supply to the indoor unit>
No
Yes
Is the serial signal error indicated 6 minutes later?
No
Is there any miswiring, poor contact, or wire disconnection of the indoor/outdoor connecting wire?
Yes
Correct them.
Yes
No
· Turn OFF inverter-controlled lighting equipment.
· Turn OFF the power supply and then turn it ON again.
· Press EMERGENCY OPERATION switch.
Is the serial signal error indicated 6 minutes later?
No
· Reinstall either the unit or the light away from each other.
· Attach a filter on receiving section of the indoor unit.
Yes
Turn OFF the power supply.
Check once again if the indoor/outdoor connecting wire is not wrongly connected.
Short-circuit the outdoor terminal block S2 and S3.
※1
※1. Miswiring may damage indoor electronic control P.C. board during operation.
Be sure to confirm the wiring is correct before the operation starts.
As for outdoor unit, refer to outdoor unit service manual.

When the left lamp of OPERATION INDICATOR lamp flashes 9-time.
Indoor unit and outdoor unit do not operate.

Ⓔ Check of float sensor


Indoor electronic control P.C. board
CN145
CN1N1
Turn OFF the power supply and check connectors CN145 and CN1N1 visually.
Are the lead wires disconnected?
Yes
Connect the lead wire.
No
Are there abnormality in the soldering part of connectors?
Yes
Solder the connector.
No
Disconnect float sensor from CN145 of indoor electronic control P.C. board. Measure the resistance between ① and ②.
*1 Refer to 10-5. when float sensor can be checked.
Is the resistance 1Ω or less? *1
Yes
Replace the indoor electronic control P.C. board.
No
Is there large amount of water in drain pan?
No
Replace the float sensor.
Yes
Turn ON the power supply. Press EMERGENCY OPERATION switch (COOL) and perform emergency COOL operation. Measure the voltage between CN1N1 ① and ②.
Is there 230V AC between CN1N1 ① and ②?
No
Replace the indoor electronic control P.C. board. Check power supply voltage.
Yes
Is the drain pump operating?
No
Replace the drain pump.
Yes
Is the drain hose clogged?
Yes
Remove clog from drain hose.
No
Replace the indoor electronic control P.C. board.

Ⓕ Electromagnetic noise enters into TV sets or radios


Is the unit earthed?
No
Earth the unit.
Yes
Is the distance between the antennas and the indoor unit within 3m, or is the distance between the antennas and the outdoor unit within 3m?
Yes
Extend the distance between the antennas and the indoor unit, or the antennas and the outdoor unit.
No
Is the distance between the TV sets or radios and the indoor unit within 1m, or is the distance between the TV sets or radios and the outdoor unit within 3m?
Yes
Extend the distance between the TV sets or radios and the indoor unit, or the TV sets or radios and the outdoor unit.
No
Are the antennas damaged? Is the coaxial cable damaged? Is there any poor contact in the antenna wiring?
Yes
Replace or repair the antenna. Replace or repair the coaxial cable.
No
Is the indoor/outdoor connecting wire of the air conditioner and the wiring of the antennas in close?
Yes
Extend the distance between the indoor/outdoor connecting wire of the air conditioner and the wiring of the antennas.
No

Even if all of the above conditions is fulfilled, the electromagnetic noise may enter, depending on the electric field strength or the installation condition (combination of specific conditions such as antennas or wiring).
Check the followings before asking for service.

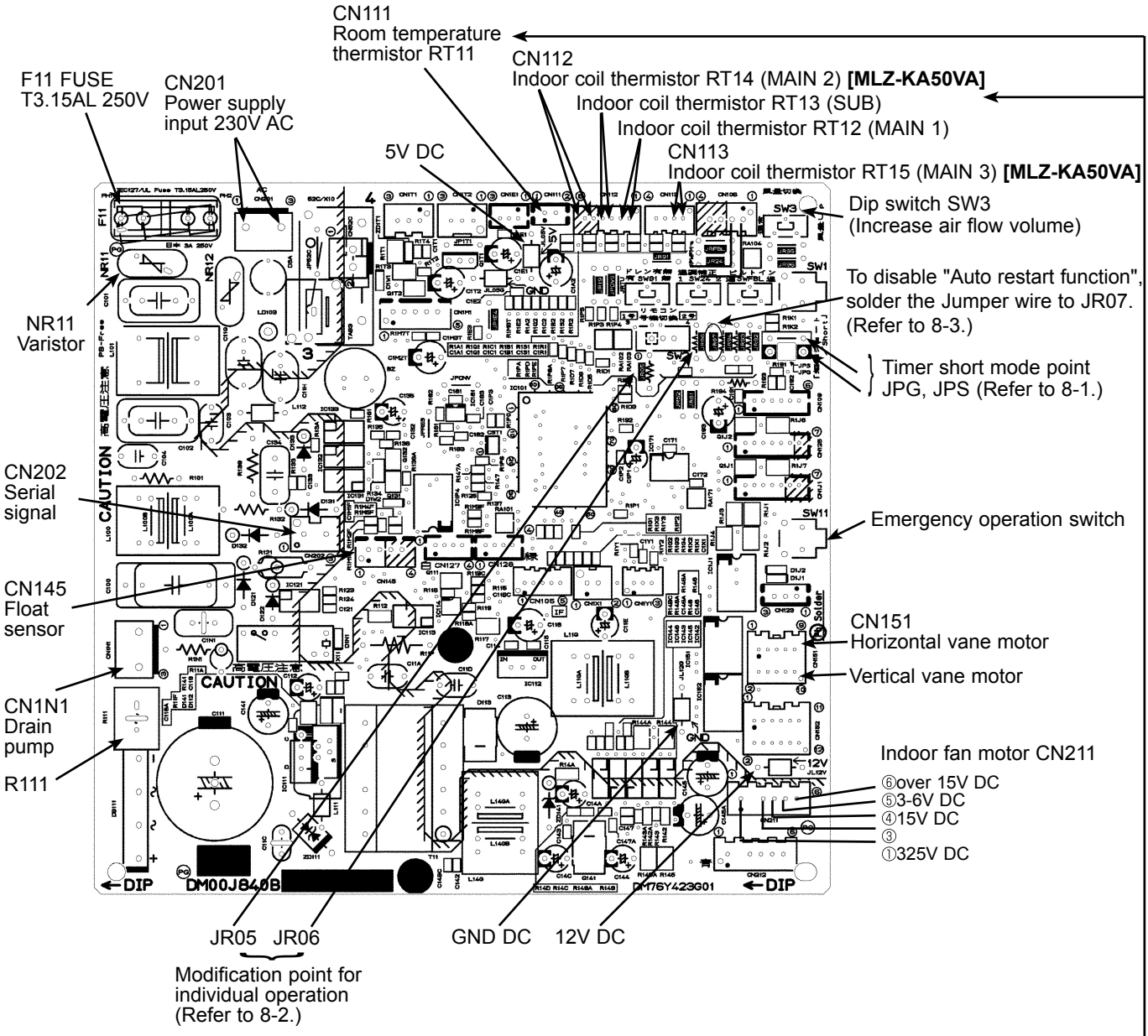
1.Devices affected by the electromagnetic noise
TV sets, radios (FM/AM broadcast, shortwave)
2.Channel, frequency, broadcast station affected by the electromagnetic noise
3.Channel, frequency, broadcast station unaffected by the electromagnetic noise
4.Layout of ;
indoor/outdoor unit of the air conditioner, indoor/outdoor wiring, grounding wire, antennas, wiring from antennas, receiver
5.Electric field intensity of the broadcast station affected by the electromagnetic noise
6.Presence or absence of amplifier such as booster
7.Operation condition of air conditioner when the electromagnetic noise enters in.
1)Turn OFF the power supply once, and then turn ON the power supply. In this situation check for the electromagnetic noise.
2)Within 3 minutes after turning ON the power supply, press OPERATE/STOP (ON/OFF) button on the remote controller for power ON, and check for the electromagnetic noise.
3)After a short time (3 minutes later after turning ON), the outdoor unit starts running. During operation, check for the electromagnetic noise.
4)Press OPERATE/STOP (ON/OFF) button on the remote controller for power OFF, when the outdoor unit stops but the indoor/outdoor communication still runs on. In this situation check for the electromagnetic noise.

After checking the above, consult the service representative.

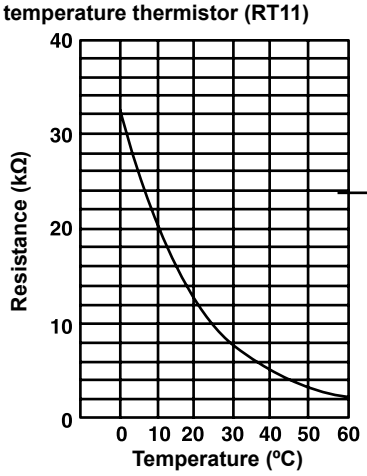
10-7. TEST POINT DIAGRAM AND VOLTAGE

MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA

Indoor electronic control P.C. board



Indoor coil thermistor [RT12,RT14,RT15 (MAIN), RT13 (SUB)]
Room temperature thermistor (RT11)

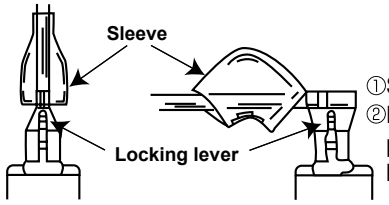


11 DISASSEMBLY INSTRUCTIONS

<"Terminal with locking mechanism" Detaching points>

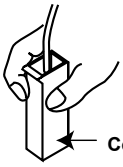
The terminal which has the locking mechanism can be detached as shown below.
There are two types (Refer to (1) and (2)) of the terminal with locking mechanism.
The terminal without locking mechanism can be detached by pulling it out.
Check the shape of the terminal before detaching.

(1) Slide the sleeve and check if there is a locking lever or not.



①Slide the sleeve.
②Pull the terminal while pushing the locking lever.

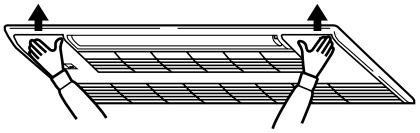
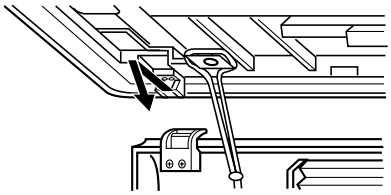
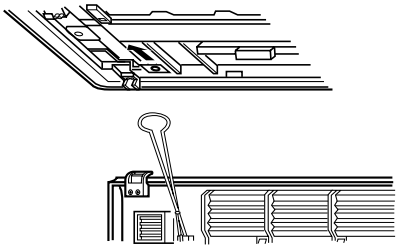
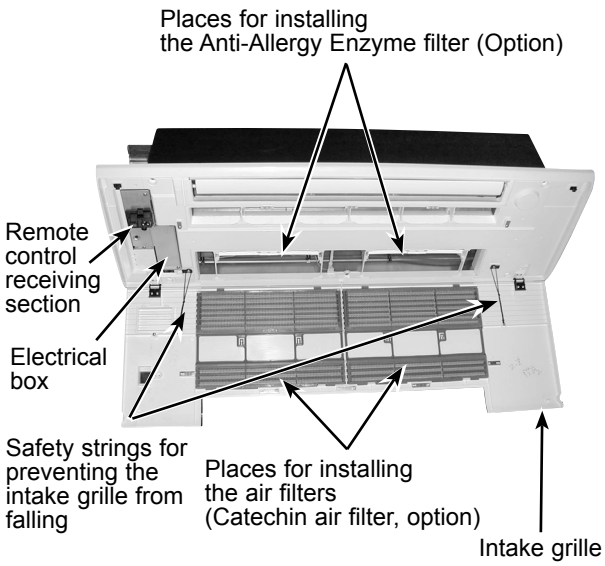
(2) The terminal with this connector has the locking mechanism.



①Hold the sleeve, and pull out the terminal slowly.

MLZ-KA25VA MLZ-KA35VA MLZ-KA50VA

NOTE: Turn OFF power supply before disassembly.

OPERATING PROCEDURE	PHOTOS
1. Opening the intake grille (1) Press the area indicated “PUSH” on the intake grille until a click is heard (Figure 1). (2) Hold the tabs on both sides of the intake grille and pull it down. **2. Removing the intake grille** (1) Press the area indicated “PUSH” on the intake grille until a click is heard. Hold the tabs on both sides of the intake grille and pull it down (Figure 1). (2) Pull the hinges of the intake grille toward you (Figure 2). (3) Unhook the safety strings supporting the intake grille from the front panel (Figure 3). **Figure 1**  **Figure 2**  **Figure 3** 	**Photo 1** 

OPERATING PROCEDURE

3. Checks before setting in place

(1) Before installing the grille, make sure the indoor unit is square with the ceiling opening (or parallel to the wall-ceiling joint).
(2) Check that the four points for securing the grille are in contact with the ceiling surface. Use the installation template supplied with the indoor unit to arrange the four points for securing the grille within 0 to 3 mm from the ceiling surface (Figure 4, 5).
(3) Check that the insulation for the refrigerant pipes, drain pipes, etc. are in place and that wiring connections and arrangements are complete.

4. Removing the horizontal vane

(1) Slide each stopper of the horizontal vane.
(2) Remove the horizontal vane (Figure 6).

NOTE:

To install, follow the removal procedure in reverse. Make sure a click is heard from each stopper when attaching the vane.

5. Removing the grille

(1) Open the intake grille.
(2) Remove the screw cap in the center of air outlet (Figure 8).
(3) Remove the fixing screws (① and ② in Figure 7).
(4) Remove the temporary holding tabs of the grille.

6. Installing the grille

(1) Press the areas indicated “PUSH” on the intake grille to open.
(2) Remove the screw cap in the center of air outlet.
(3) Open the horizontal vane completely.
(4) Hook the temporary holding tabs of the grille to the indoor unit (Figure 7).
(5) Place the grille so that it fits properly in the wall-ceiling joint, and attach the front panel with the fixing screws ① provided. Do not fully tighten the screws at this point.
(6) Tighten the fixing screws ① in the center three places and ② (Figure 7).
(7) Tighten the fixing screws ① in the four places at left and right side of the indoor unit.

At this point, make sure there are no gaps between the indoor unit and grille, and between the grille and ceiling surface. If there are gaps, the wind may come in and it may cause water to drip (Figure 9).

※ Tighten the fixing screw ① and ② completely.

Installing the Anti-Allergy Enzyme filter (Option)

Push the Anti-Allergy Enzyme filter into the guide of the grille until a click is heard (Figure 10).

PHOTOS

Figure 4

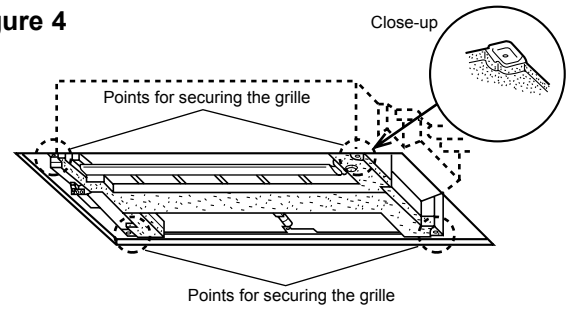


Figure 5

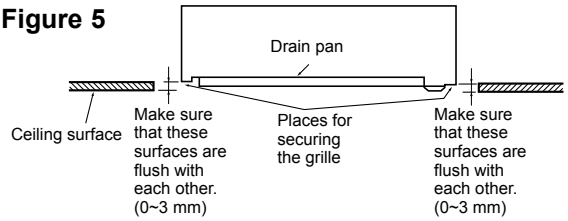

Drain pan
Ceiling surface
Make sure that these surfaces are flush with each other. (0~3 mm)
Places for securing the grille
Make sure that these surfaces are flush with each other. (0~3 mm)

Figure 6

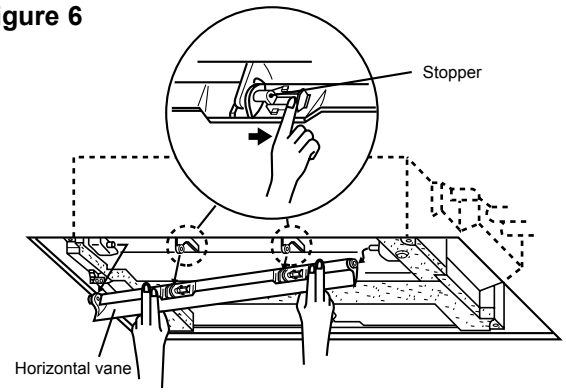


Figure 7

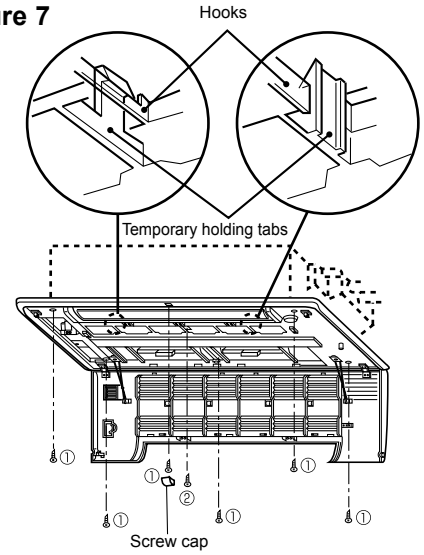
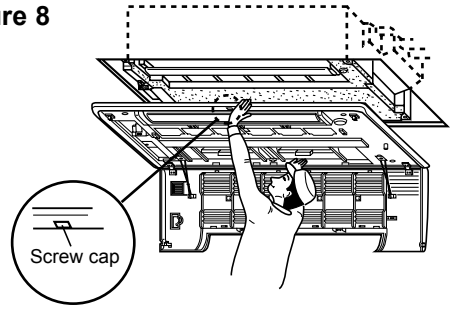


Figure 8



OPERATING PROCEDURE

7. Check after installing

(1) Check that there are no gaps between the indoor unit and grille, and between the grille and ceiling surface (Figure 9). (If there are gaps, the wind may come in and dew condensation may result.)
(2) Is the air filter installed?
(3) Is the Anti-Allery Enzyme filter (Option) installed?

8. Removing the electronic control P.C. board and display receiver P.C. board

(1) Open the intake grille.
(2) Remove the screws for the electrical cover Ⓐ and Ⓑ. Remove the covers (Photo 2).
(3) Remove the screw for the lamp cover and unhook it.
(4) Pull the electronic control P.C. board slightly toward you from the electrical box, and disconnect all the connectors from the electronic control P.C. board.
(5) Remove the electronic P.C. board and display receiver P.C. board.

9. Removing the heat exchanger and nozzle

(1) Remove the grille.
(2) Remove the room temperature thermistor.
(3) Remove the two claws in the center of the nozzle and the screws for the drain pan.
(4) Remove the screws for the electrical cover Ⓐ and Ⓑ. Remove both covers.
(5) Disconnect the connectors of the vertical and horizontal vane motor.
(6) Remove the indoor coil thermistor (main and sub.).
(7) Remove the screws for the drain cover. Remove the drain cover.
(8) Remove the pipe band.
(9) Remove the screws for the heat exchanger. Remove the heat exchanger.
(10) Remove the screws for the nozzle. Remove the nozzle.

10. Removing the horizontal and vertical vane motor unit

(1) Remove the grille.
(2) Remove the drain pan.
(3) Remove the horizontal vane (Figure 6).
(4) Remove the screws for the cover of the horizontal and vertical vane motor unit. Remove the cover.
(5) Remove the screws for the vertical vane motor unit. Remove the vertical vane motor unit and disconnect the connectors (Photo 4).
(6) Remove the screws for the horizontal vane motor unit. Remove the horizontal vane motor unit and disconnect the connectors (Photo 4).

PHOTOS

Figure 9

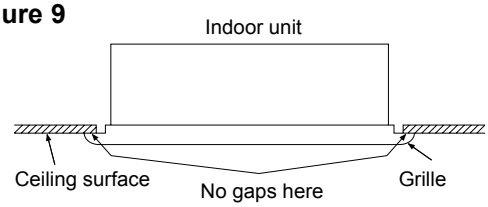


Figure 10

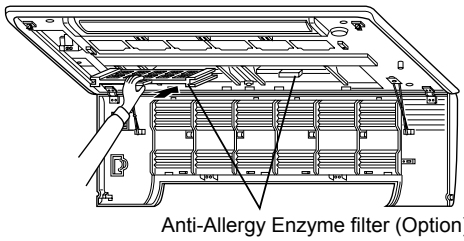


Photo 2

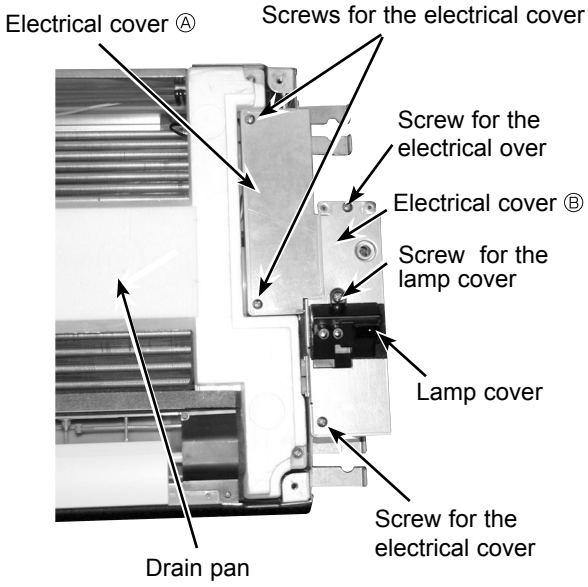
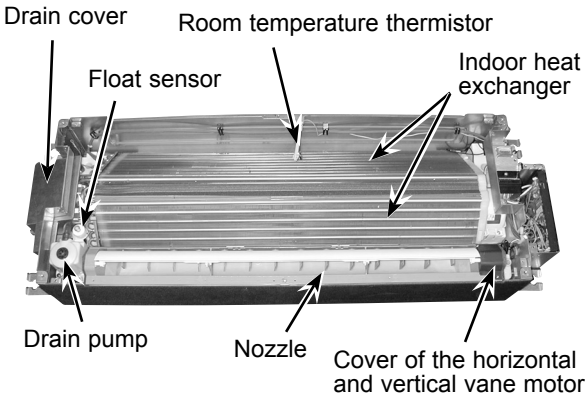
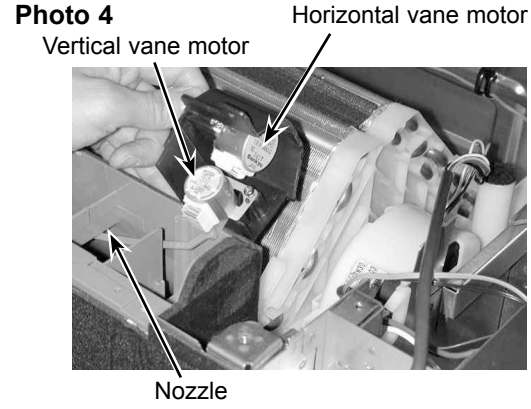
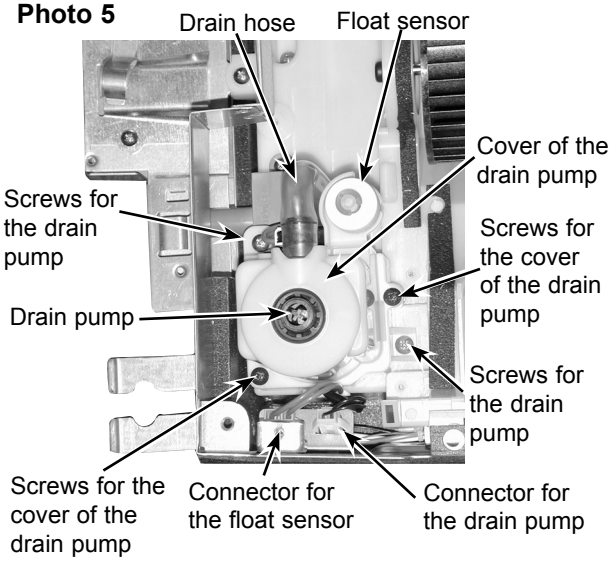
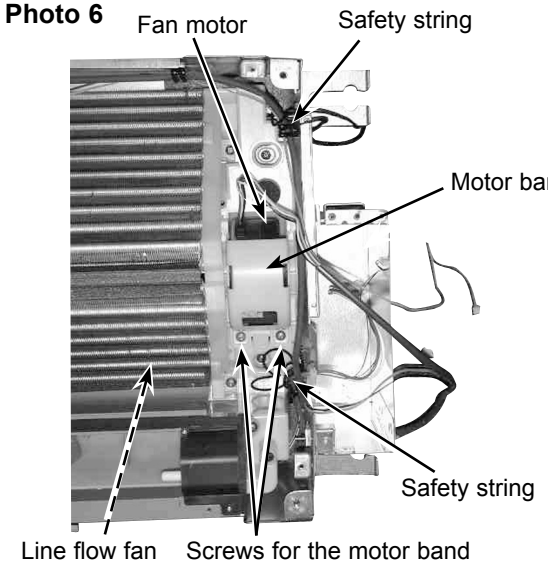


Photo 3



OPERATING PROCEDURE	PHOTOS
11. Removing the drain pump and float sensor (1) Remove the grille. (2) Remove the drain pan. (3) Disconnect the connector of the drain pump (Photo 5). (4) Disconnect the connector of the float sensor (Photo 5). (5) Remove the drain hose (Photo 5). (6) Remove the screws for the drain pump (Photo 5). (7) Remove the screws for the cover of the drain pump (Photo 5).	**Photo 4** 
12. Removing the fan motor and line flow fan (1) Remove the grille. (2) Remove the drain pan. (3) Remove the drain cover. (4) Remove the pipe band. (5) Remove the screws for the electrical cover Ⓐ and Ⓑ. Remove both covers. (6) Remove the screws for the terminal box. Remove the terminal box. (7) Untie the safety strings from the clamp (Photo 6). (8) Hook the safety strings to the tab on the side of the heat exchanger. (This prevents the heat exchanger from falling.) Remove the screws for the heat exchanger and pull the heat exchanger downward. (9) Remove the screws for the nozzle. Remove the nozzle. (10) Pull out the electronic control P.C. board slightly and disconnect the connector (CN211) of the indoor fan motor. (11) Remove the screws for the motor band. Remove the motor band (Photo 6). (12) Remove the indoor fan motor and line flow fan. (No need to remove the heat exchanger before removing these 2 items.)	**Photo 5**  **Photo 6** 

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